

Supplemental Table 2.

Gene	Colocalizing cell/tissue	Existing evidence
<i>ABO</i>	Adrenal gland (Severe) - Hazardous Artery tibial (Severe) – Hazardous Breast Mammary Tissue (Susceptible) – Hazardous Esophagus mucosa (Susceptible) - Hazardous Esophagus muscularis (Severe) - Hazardous Heart Left Ventricle (Severe and Hospitalized) – Hazardous Liver (Hospitalized) - Hazardous Muscle skeletal (Severe) - Hazardous Testis (All) - Hazardous Whole blood COVID+ Symptoms+ (Hospitalized) - Protective	MR in non-GTEX and GTEX eQTL and pQTL datasets for lung and whole blood (Baranova et al. 2022; Hernandez Cordero et al. 2021)
<i>ADAM15</i>	T central memory Stim 5d (Susceptible) - Hazardous	MR with colocalization in GTEX did not observe colocalization (Wang et al. 2022)
<i>ATP11A</i>	Artery Aorta (Hospitalized) - Protective	Fine mapping (Kousathanas et al. 2022)
<i>ATP5PO</i>	Lung (Hospitalized) - Hazardous	Associational (Li et al. 2022)
<i>CNPY4</i>	Testis (Severe) - Protective	None
<i>COPS6</i>	Esophagus muscularis (Hospitalized) - Protective	None
<i>DLX3</i>	Lung (Hospitalized) - Hazardous	MR with colocalization in lung (Hernandez Cordero et al. 2021)
<i>DPP9</i>	Skin sun exposed lower leg (All) - Protective	Associational data in blood (Sharif-Zak et al. 2022)
<i>FAM55C</i>	Esophagus muscularis (Susceptible) - Hazardous	None
<i>GBA</i>	Nerve Tibial (Susceptible) - Hazardous Thyroid (Susceptible) - Hazardous	None
<i>GBAP1</i>	Breast Mammary Tissue (Susceptible) - Hazardous Cultured Fibroblasts (Susceptible) - Hazardous Colon Sigmoid (Susceptible) - Hazardous Lung (Susceptible) - Hazardous Nerve Tibial (Susceptible) - Hazardous Small Intestine Terminal Ileum (Susceptible) - Hazardous Stomach (Susceptible) - Hazardous	MR with colocalization for splice isoform (Nakanishi et al. 2022)
<i>HIP1</i>	Breast mammary tissue (Severe) - Hazardous Nerve tibial (Severe) - Hazardous Whole blood COVID- Symptoms- (Severe) - Protective	None
<i>IFNAR2</i>	Cells cultured fibroblasts (Severe and hospitalized) - Protective Esophagus mucosa (Susceptible) - Protective Whole blood COVID- Symptoms+ (Hospitalized) - Protective Whole blood COVID+ Symptoms+ (Severe) - Protective	MR with colocalization for GTEX v.7 eQTLs and pQTLs for whole-blood and lung (Baranova et al. 2021; Fricke-Galindo et al. 2022; Krishnamoorthy et al. 2023; Liu et al. 2021; Pairo-Castineira et al. 2021)
<i>IL10RB</i>	Cells Cultured fibroblasts (All) - Protective Esophagus Gastroesophageal junction (All) - Hazardous Skeletal muscle (Susceptible) - Hazardous Nerve tibial (All) - Hazardous	MR with colocalization for eQTLs and pQTLs, did not study excitatory neurons (Gaziano et al. 2021)
<i>KCNC3</i>	Tibial nerve (Severe and Hospitalized) – Hazardous	TWAS (Krishnamoorthy et al. 2023)
<i>LINC01301</i>	Breast mammary tissue (Hospitalized) – Protective Skin not sun exposed (Hospitalized) - Protective	TWAS (Pairo-Castineira et al. 2022)
<i>LINC02210</i>	Artery tibial (Severe) – Protective	MR with colocalization (Baranova et al. 2021)
<i>Lnc-INTS12-1</i>	Artery aorta (Severe) – Protective Thyroid (Severe) - Protective	None
<i>Lnc-THBS3-1</i>	Whole blood COVID- Symptoms- (Susceptible) - Protective	None
<i>MAMSTR</i>	Skin Sun Exposed (Hospitalized) – Protective	TWAS (Krishnamoorthy et al. 2023)

<i>MUC1</i>	Nerve tibial (Severe and Hospitalized) - Hazardous	MR from GTEx v.7 against HGI release 6 found signal in blood (Krishnamoorthy et al. 2023)
<i>MUC5B</i>	Lung (Severe) - Protective	MR only for lung eQTLs GTEx release 7 (Liu et al. 2021)
<i>NAPSA</i>	CD4 Naïve Stim 40h (Susceptible) - Hazardous Esophageal mucosa (Severe and Hospitalized) - Protective T effector memory Stim 40h (All) - Hazardous T naïve (Hospitalized and Susceptible) - Hazardous Testis (Hospitalized) - Protective	MR with colocalization for eQTLs, did not study CD4+ T cells (Degenhardt et al. 2022)
<i>NAPSB</i>	Artery Coronary (Susceptible) - Protective	None
<i>NTN5</i>	Colon sigmoid (Hospitalized) - Protective Esophageal Gastroesophageal junction (Hospitalized) - Protective Esophagus mucosa (Severe and Hospitalized) - Protective	None
<i>OAS1</i>	Adipose subcutaneous (Hospitalized) - Protective Artery tibial (Susceptible) - Protective Esophagus mucosa (Hospitalized) - Hazardous Nerve tibial (Susceptible) - Hazardous Skin not sun exposed (Severe and Susceptible) - Protective Skin sun exposed (All) - Protective	MR with colocalization of eQTL and pQTL (Zhou et al. 2021)
<i>PDCL3P4</i>	Brain Caudate Basal Ganglia (Susceptible)	Colocalization (D'Antonio et al. 2021)
<i>RAB2A</i>	Adipose subcutaneous (Hospitalized) - Hazardous Artery aorta (Hospitalized) - Hazardous Artery tibial (Hospitalized) - Hazardous CD4 Memory Stim 40h (Hospitalized) - Hazardous CD4 Naïve Stim 16h (Hospitalized) - Hazardous CD4 Naïve Stim 40h (Hospitalized) - Hazardous Esophagus mucosa (Hospitalized) - Hazardous Esophagus muscularis (Hospitalized) - Hazardous Liver (Hospitalized) - Hazardous Lung (Hospitalized) - Hazardous Skin not sun exposed (Hospitalized) - Hazardous T naïve Stim 40h (Hospitalized) - Hazardous	MR and colocalization for pQTLs, but not for eQTLs (Pietzner et al. 2022)
<i>RALGDS</i>	T effect memory Stim 16h (Severe and Susceptible) - Protective	None
<i>RASIP1</i>	Esophageal Gastroesophageal junction (Severe and Hospitalized) - Protective Esophagus muscularis (Severe) - Protective	None
<i>SLC22A31</i>	Heart left ventricle (Severe and Hospitalized) – Hazardous	PheWAS linked (Covid-19 Host Genetics Initiative 2022)
<i>SLC6A20</i>	Breast mammary tissue (Severe and Hospitalized) – Hazardous	GWAS (Severe Covid et al. 2020)
<i>WNT3</i>	Adrenal Gland (Hospitalized) - Hazardous Artery Aorta (Severe and Hospitalized) - Protective Colon Transverse (Severe) - Hazardous Nerve Tibial (Severe) - Hazardous Thyroid (Severe and Hospitalized) - Hazardous	Fine mapped (Wu et al. 2021)

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