Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about the work.

Persistent False-positive COVID-19 Rapid Antigen Test Results May Be Caused by Cross-reactive Autoantigen: findings from the RADx Clinical Studies Core
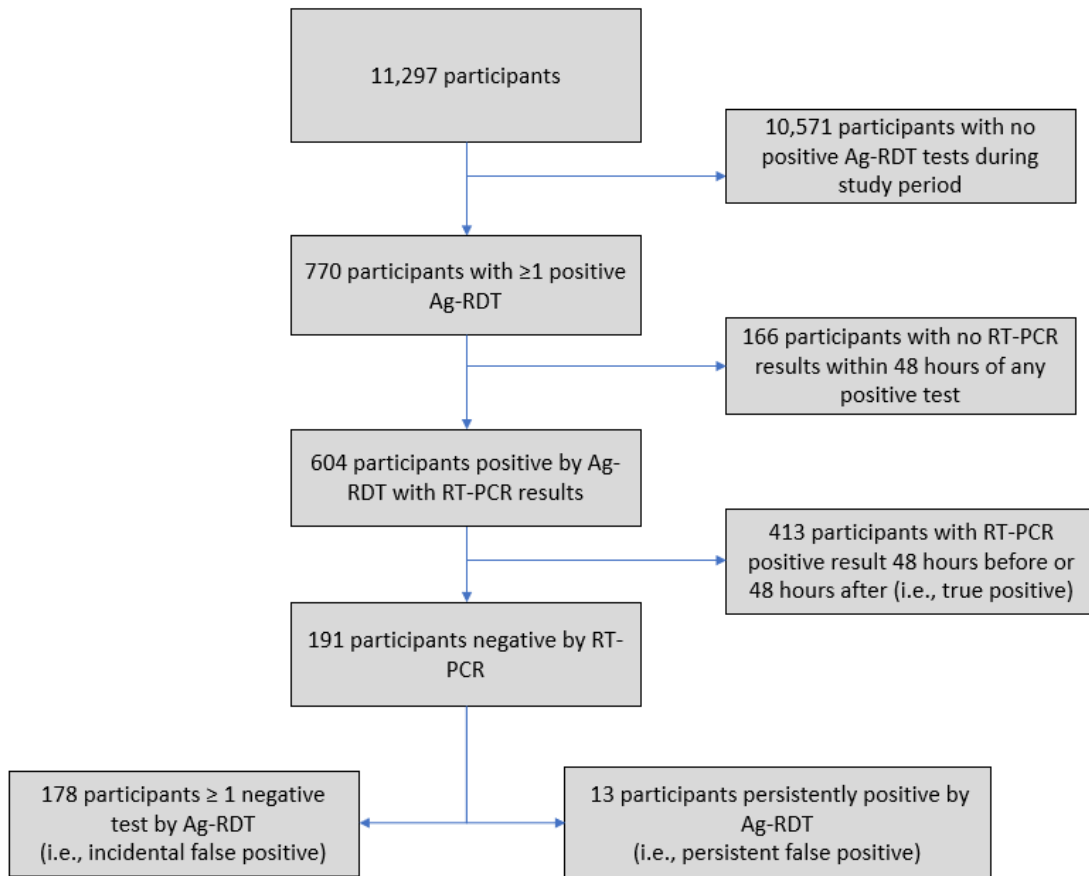
Contents

Supplemental Methods:

Molecular Testing: Participants were asked to collect two anterior nasal swabs for paired Ag-RDT and RT-PCR testing every 48 hours for 15 days (Test Us at Home) or after symptom onset or close contact exposure (STOP COVID-19). One nasal swab was used to conduct an at-home Ag-RDT, and the other swab was placed in saline and shipped to Quest Diagnostics within 24 hours of collection for RT-PCR testing with Roche Cobas 6800 SARS-CoV-2 PCR.

Rapid Antigen Testing: Participants were instructed to complete testing with the provided Ag-RDT (Quidel QuickVue At-Home OTC COVID-19 Test, Abbott BinaxNOW COVID-19 Antigen Self Test, or BD Veritor™ At-Home COVID-19 Test) as per Emergency Use Authorization instructions. After administering the Ag-RDT, participants were asked to record Ag-RDT results ("Negative", "Positive", "Invalid", or "Don't Know") in the study app. Participants also were asked to upload a photo of the used test strip to the app. Results from Ag-RDT were verified by a study coordinator using the uploaded photos. If the Ag-RDT result was invalid, participants were asked to perform one additional Ag-RDT. However, after two consecutive invalid Ag-RDT results, participants were not asked to complete additional Ag-RDT on that study day.

Supplemental Figure:

Figure S1: COHORT Diagram for Identification of False Positive Individuals

Ag-RDT: rapid antigen test; RT-PCR: reverse-transcriptase polymerase chain reaction

Supplemental Table:

Table S1: Participant Demographics and Prevalence of Self-Reported Autoimmune Disease

	Total Cohort N=11,289
RT-PCR positive for SARS-CoV-2: n (%)	698 (6.2%)
Vaccination Doses: n (%)	
1	536 (4.74%)
2	5,514 (48.8%)
3+	3,466 (30.7%)
Unvaccinated	1,310 (11.6%)
Don't know	471 (4.16%)
Age:	
<18 years	1,235 (10.9%)
18-40 years	6,474 (57.3%)
40-64 years	2,622 (23.2%)
≥65 years	966 (8.6%)
Gender: n (%)	
Woman	7577 (67.1%)
Man	3573 (31.6%)
Nonbinary	10 (0.1%)
No answer	137 (1.21%)
Comorbidities: n (%)	
No comorbidities	7,364 (65.2%)
1 comorbidity	2,448 (21.7%)
2+ comorbidities	1,485 (13.2%)
Self-reported autoimmune disease[a]: n (%)	347 (3.1%)

[a] Represented autoimmune diseases include Celiac disease, rheumatoid arthritis, Grave's disease, Multiple sclerosis, Lupus, ankylosing spondylitis, Crohn's disease, ulcerative colitis, Hashimoto's thyroiditis, pernicious anemia, vitiligo, Sjogren's disease, and Wegner's disease. Excludes Type 1 Diabetes.

Appendix 1: Acknowledgments

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6

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