



HLA-associated COVID-19 Clinical Outcomes in the *All of Us* Dataset

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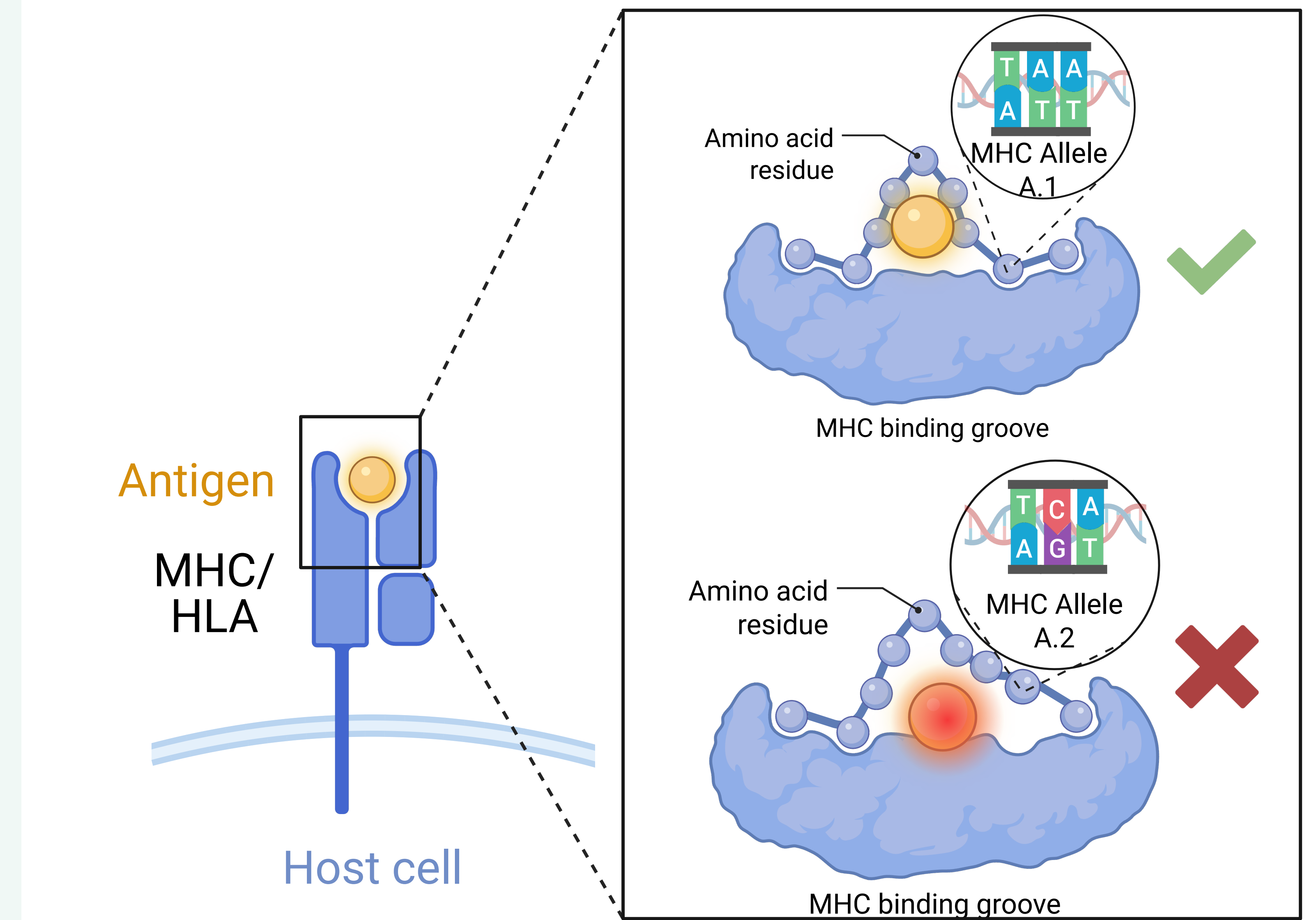
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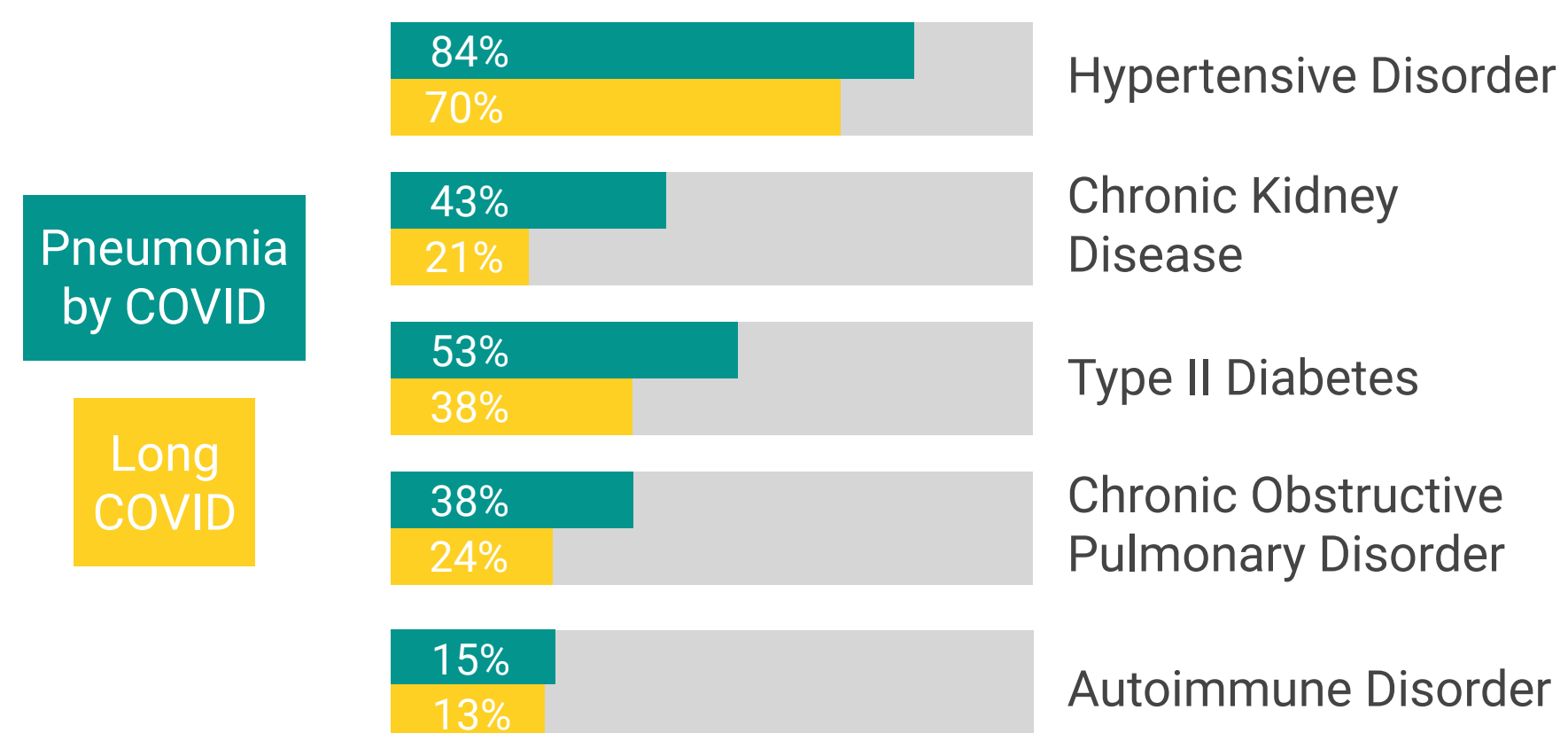
Immune genes (HLA) can help predict patients at greater risk of severe COVID-19 clinical outcomes, which can be used to advance precision medicine



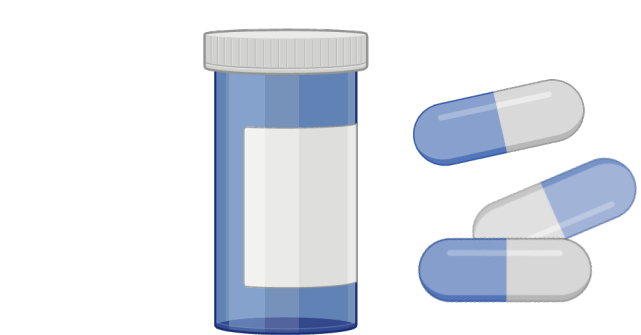
COHORT DEMOGRAPHICS

61-63 Average age of Pneumonia by COVID-19 cohort

59 Average age of Long COVID cohort



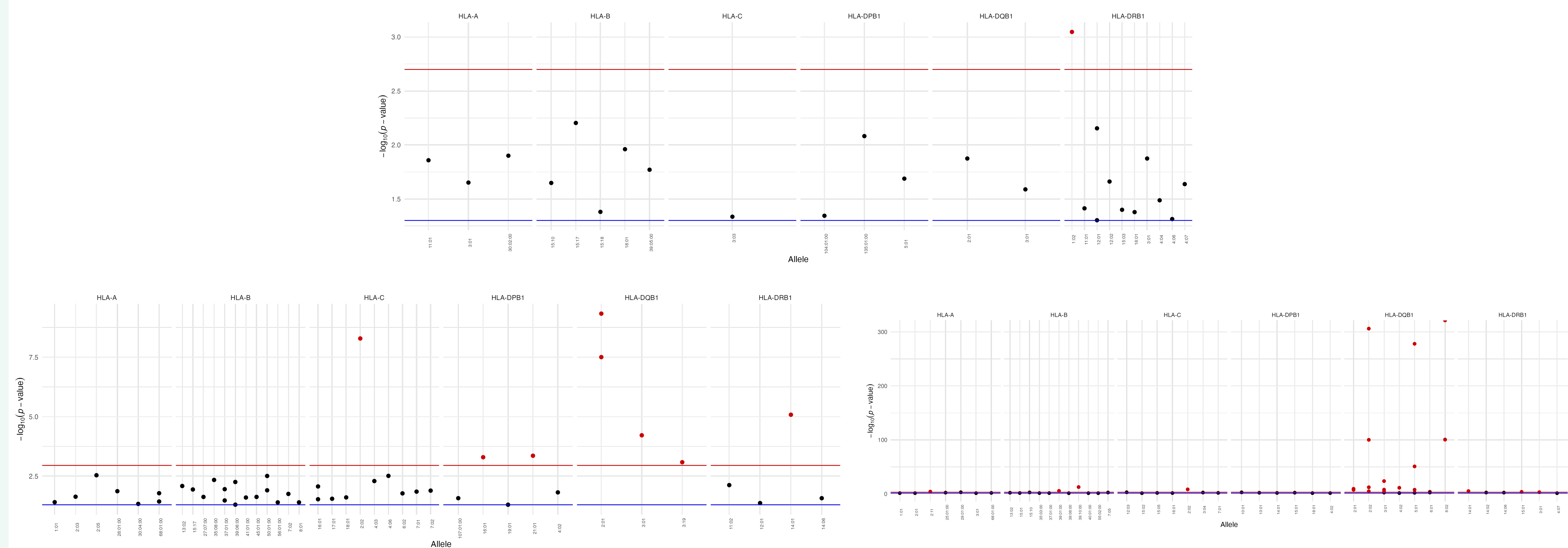
9.2%



Prescribed immunosuppressants within 21 days of SARS-CoV-2 test

12%

RESULTS



HLA Alleles significantly associated with positive test (**top**), Pneumonia by COVID-19 or lower respiratory infection caused by SARS-CoV-2 (**bottom left**), and Long COVID (**bottom right**). Blue line indicates significance threshold ($p=0.05$), while the red line delineates a Bonferroni-corrected threshold ($p=0.05$).



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