

VIROLOGICAL AND IMMUNOLOGICAL FEATURES OF SARS-COV-2 INFECTED CHILDREN WITH DISTINCT SYMPTOMATOLOGY

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Abstract

BACKGROUND: Despite SARS-CoV-2 immunizations have started in most countries, children are not currently included in the vaccination programs, thus it remains crucial to define their anti-SARS-CoV-2 immune response in order to minimize the risk for other epidemic waves. This study seeks to provide a description of the virology and anti-SARS-CoV-2 immunity in children with distinct symptomatology. **METHODS:** Between March and July 2020, we recruited 15 SARS-CoV-2 asymptomatic (AS) and 51 symptomatic children (SY), stratified according to WHO clinical classification. We measured SARS-CoV-2 viral load using ddPCR and qPCR in longitudinally collected nasopharyngeal swabs samples. To define anti-SARS-CoV-2 antibodies we measured neutralization activity and total IgG load (Diasorin). We also evaluated antigen-specific B and CD8+T-cells, using a labelled S1+S2 protein and ICAM expression, respectively. Plasma protein profiling was performed with Olink. **RESULTS:** Virological profiling showed that AS had lower viral load at diagnosis ($p=0.004$) and faster virus clearance ($p=0.0002$) compared to SY. Anti-SARS CoV-2 humoral and cellular response did not appear to be associated with the presence of symptoms. AS and SY showed similar titers of SARS-CoV-2 IgG, levels of neutralizing activity, and frequency of Ag-specific B and CD8+T-cells. Whereas pro-inflammatory plasma protein profile was associated to symptomatology. **CONCLUSION:** We demonstrated the development of anti-SARS-CoV-2 humoral and cellular response with any regards to symptomatology, suggesting the ability of both SY and AS to contribute towards herd immunity. The virological profiling of AS suggested that they have lower virus load associated with faster virus clearance.

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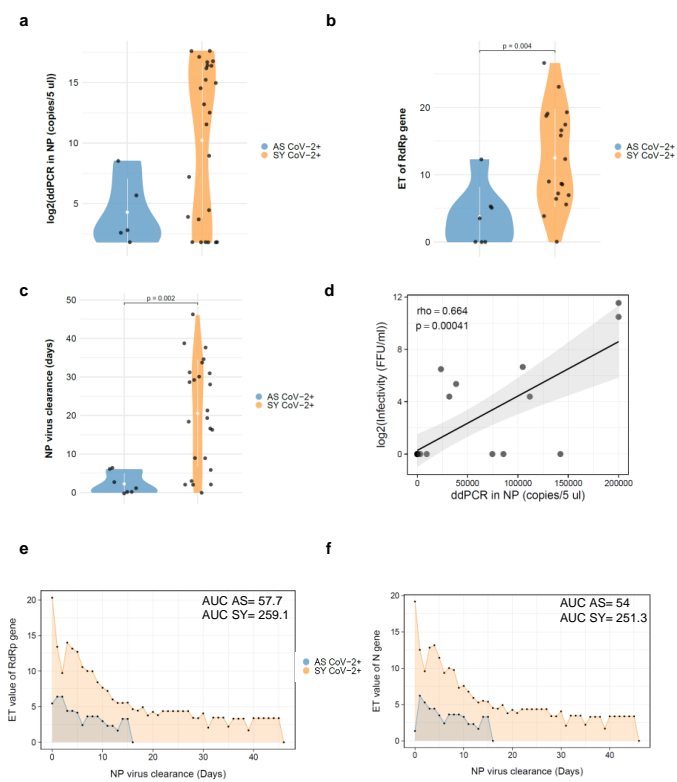
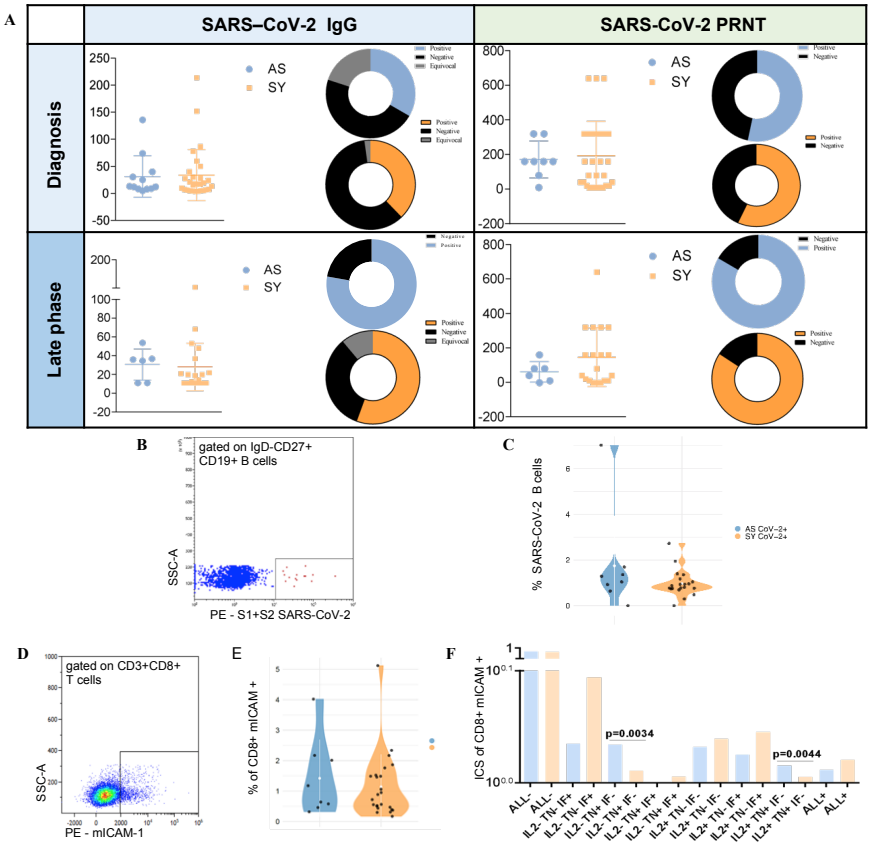


Fig. 1

Fig. 2



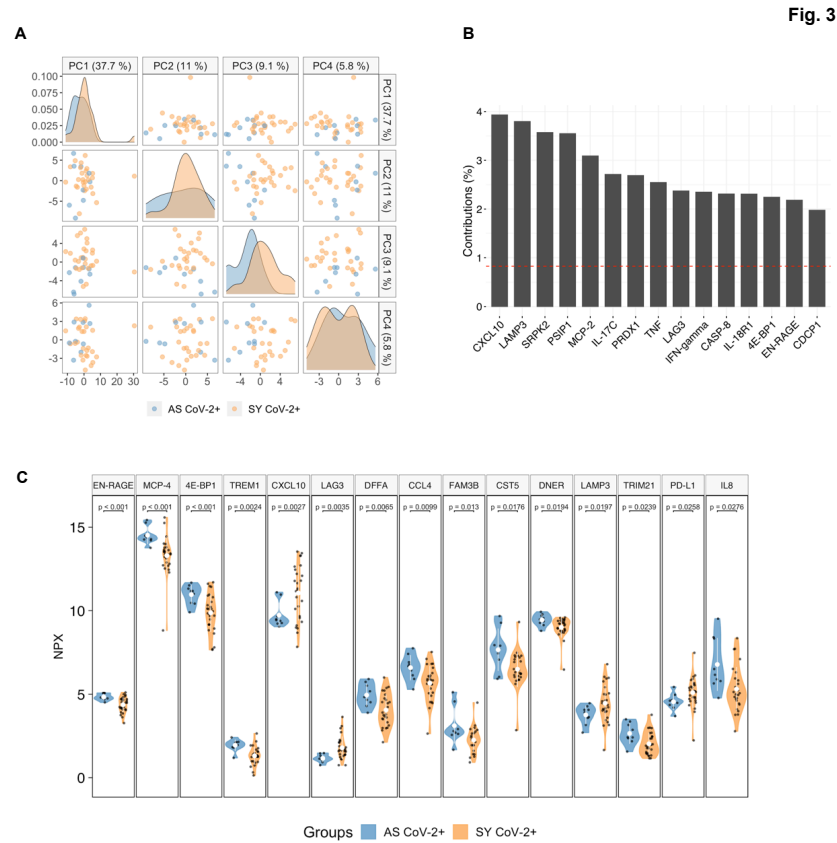


Fig. 3