# Distinct Pro-Inflammatory/Pro-Angiogenetic Signatures Distinguish Children With Long COVID

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## BACKGROUND

Recent proteomic studies have documented that Long COVID in adults is characterized by a pro-inflammatory signature with thromboinflammation. However, if similar events happen also in children with Long COVID has never been investigated

## METHODS

We performed an extensive protein analysis of blood plasma from pediatric patients younger than 19 years of age Long COVID and a control group of children with acute COVID-19, MIS-C, and healthy controls resulted similar for sex distribution and age. Children were classified as Long COVID if symptoms persisted for at least 8 weeks since the initial infection, negatively impacted daily life and could not be explained otherwise

**At a Glance**

# Pediatric Long COVID patients have a well distinct blood protein signature

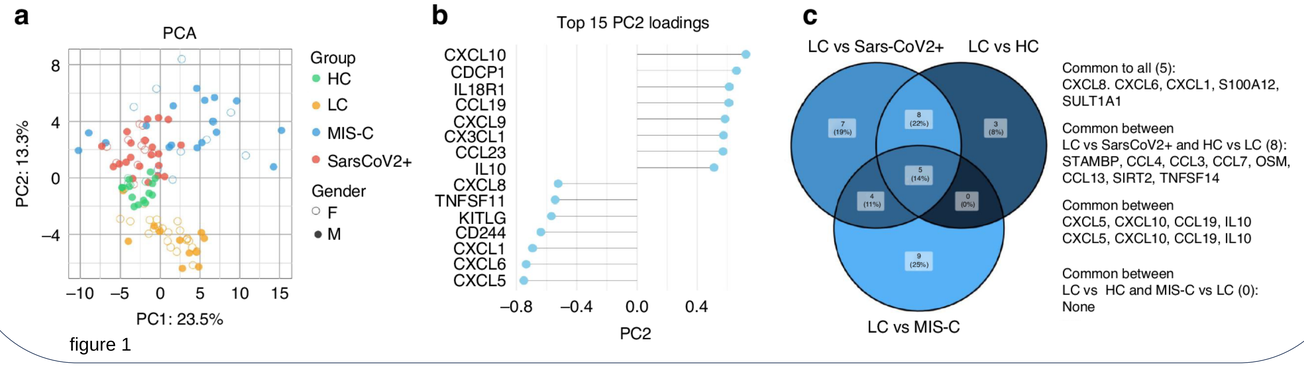



figure 1

## CONCLUSIONS

Pediatric Long COVID patients have a well distinct blood protein signature marked by increased ongoing general and endothelial inflammation, similarly as happens in adults..

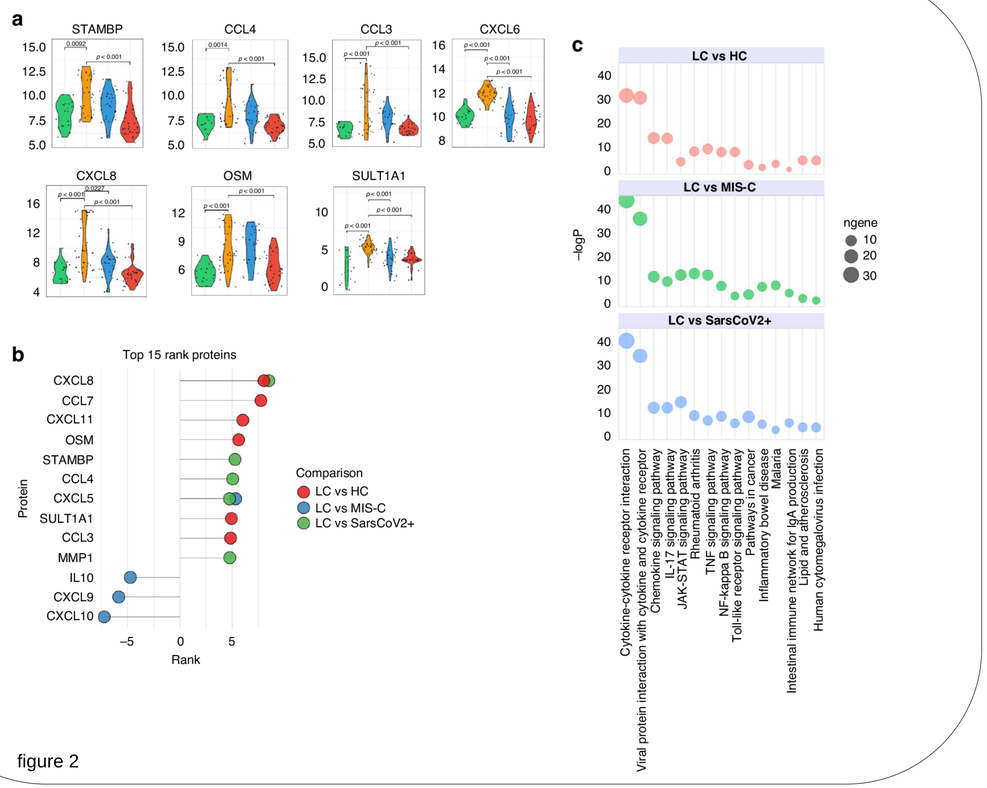



figure 2

## RESULTS

112 children were included in the study, including 34 children fulfilling clinical criteria of Long COVID, 32 acute SARS-CoV-2 infection, 27 MIS-C and 19 healthy controls (figure 1). Compared with controls, pediatric Long COVID was characterized by higher expression of the proinflammatory and pro-angiogenetic set of chemokines CXCL11, CXCL1, CXCL5, CXCL6, CXCL8, TNFSF11, OSM, STAMBP1a (figure 2). A Machine Learning model based on proteomic profile was able to identify LC with an accuracy of 0.93, specificity of 0.86 and sensitivity of 0.97 (figure 3)

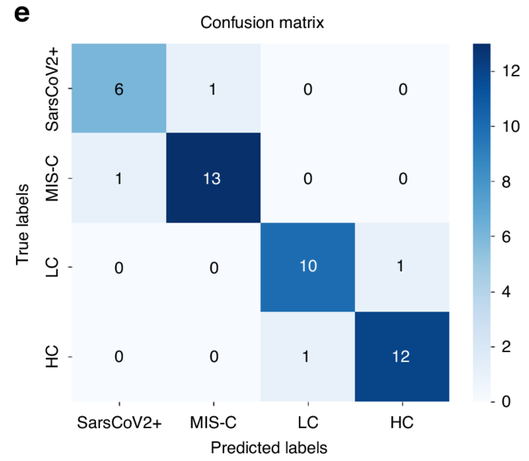



figure 3