

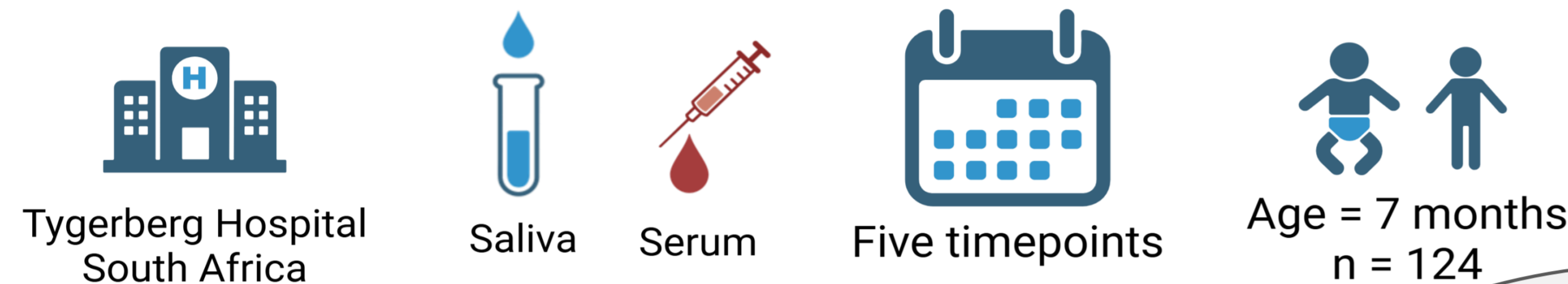
# Mucosal immunity matters: the association of salivary antibodies and cytokines with disease severity in South African children hospitalised with acute respiratory infections

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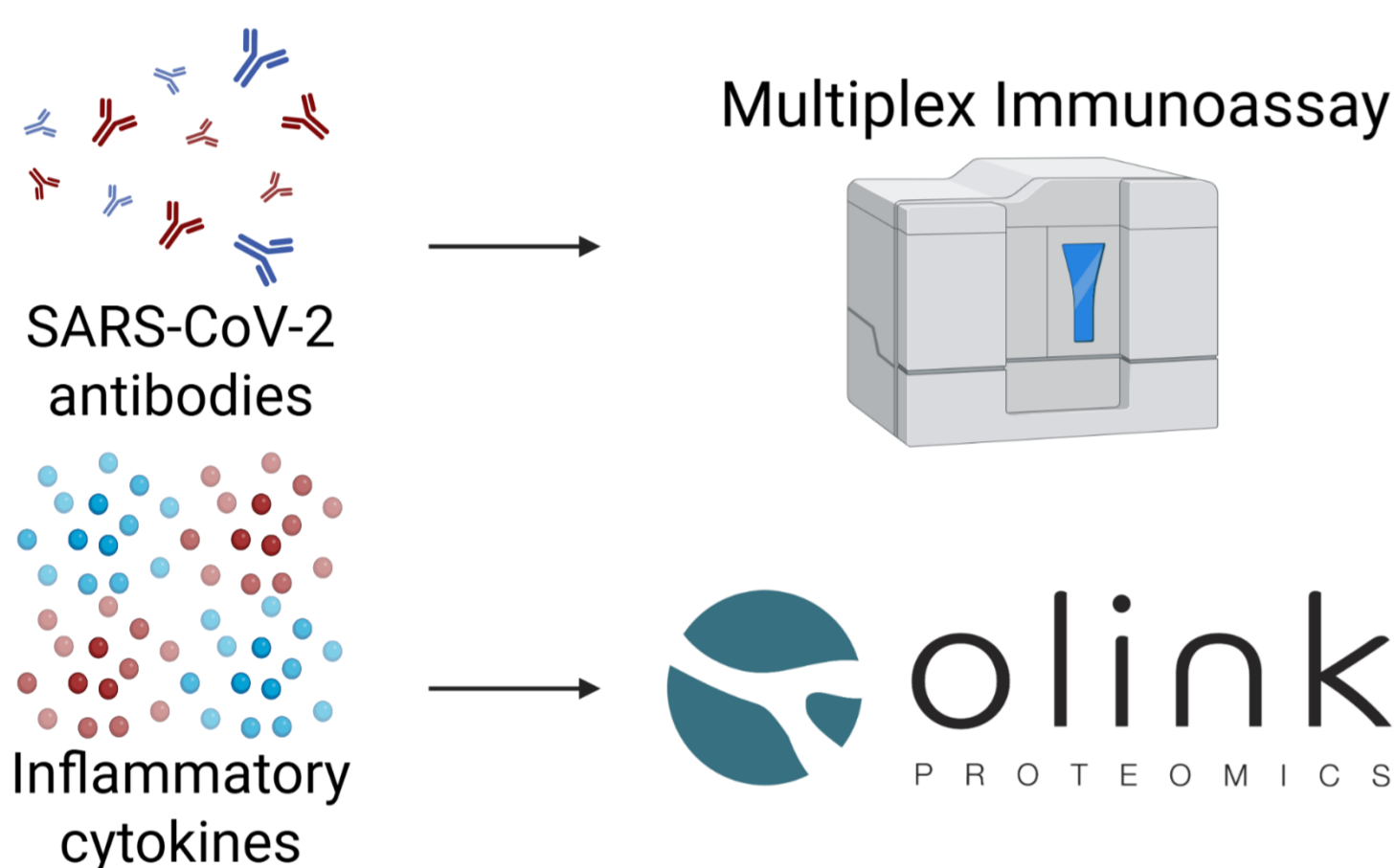
## Introduction

- Children from low- and middle-income countries (LMICs) are disproportionately affected by respiratory tract infections (RTIs)
- Current diagnostics are based on immunological markers in **serum**, which lack accuracy and are unsuited for pathogen surveillance
- **Saliva** sampling offers a non-invasive potentially more informative tool.

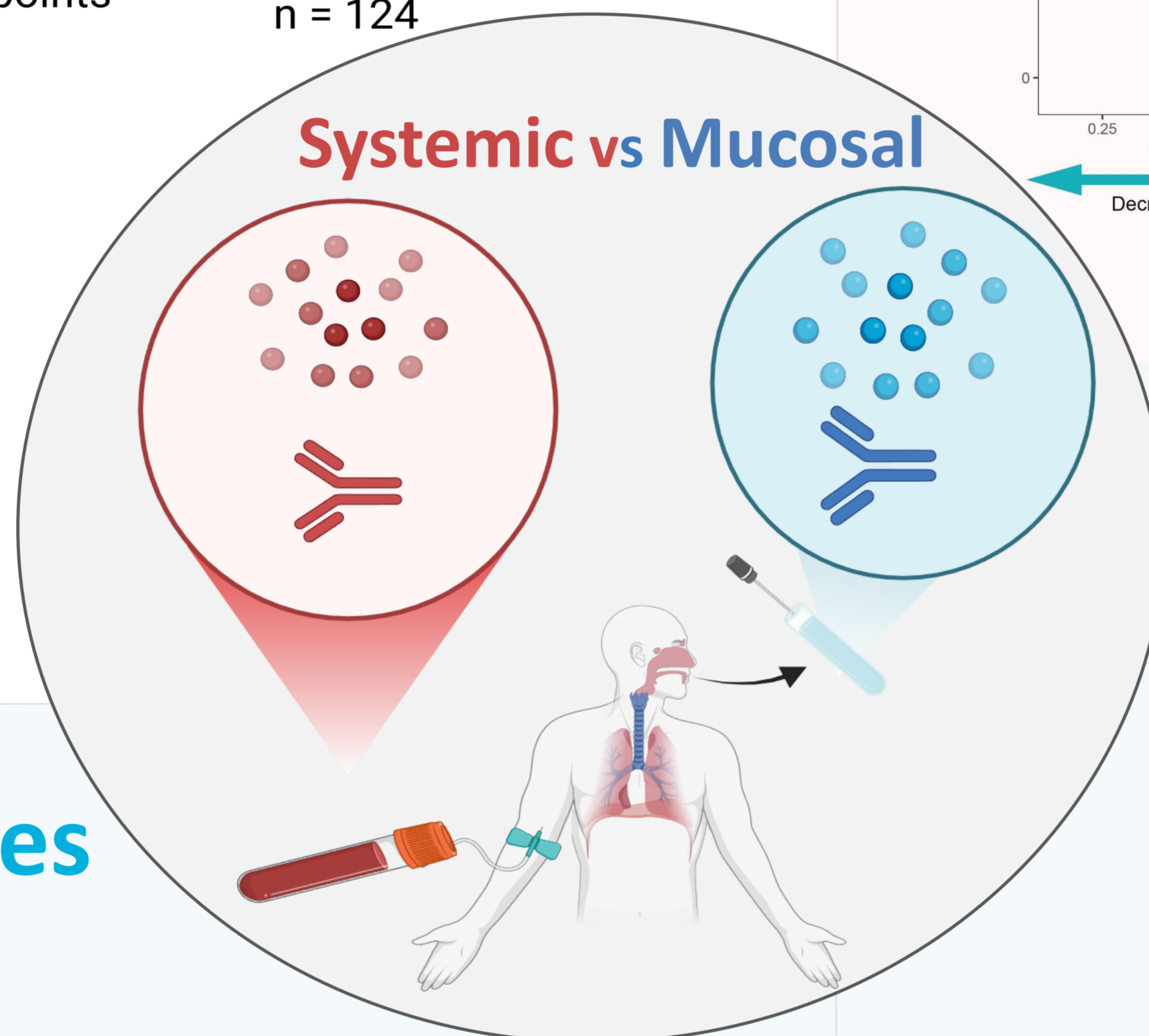
## Methods



## Outcomes



## Systemic vs Mucosal



### Outcome 1

## Saliva and serum antibodies increase after infection

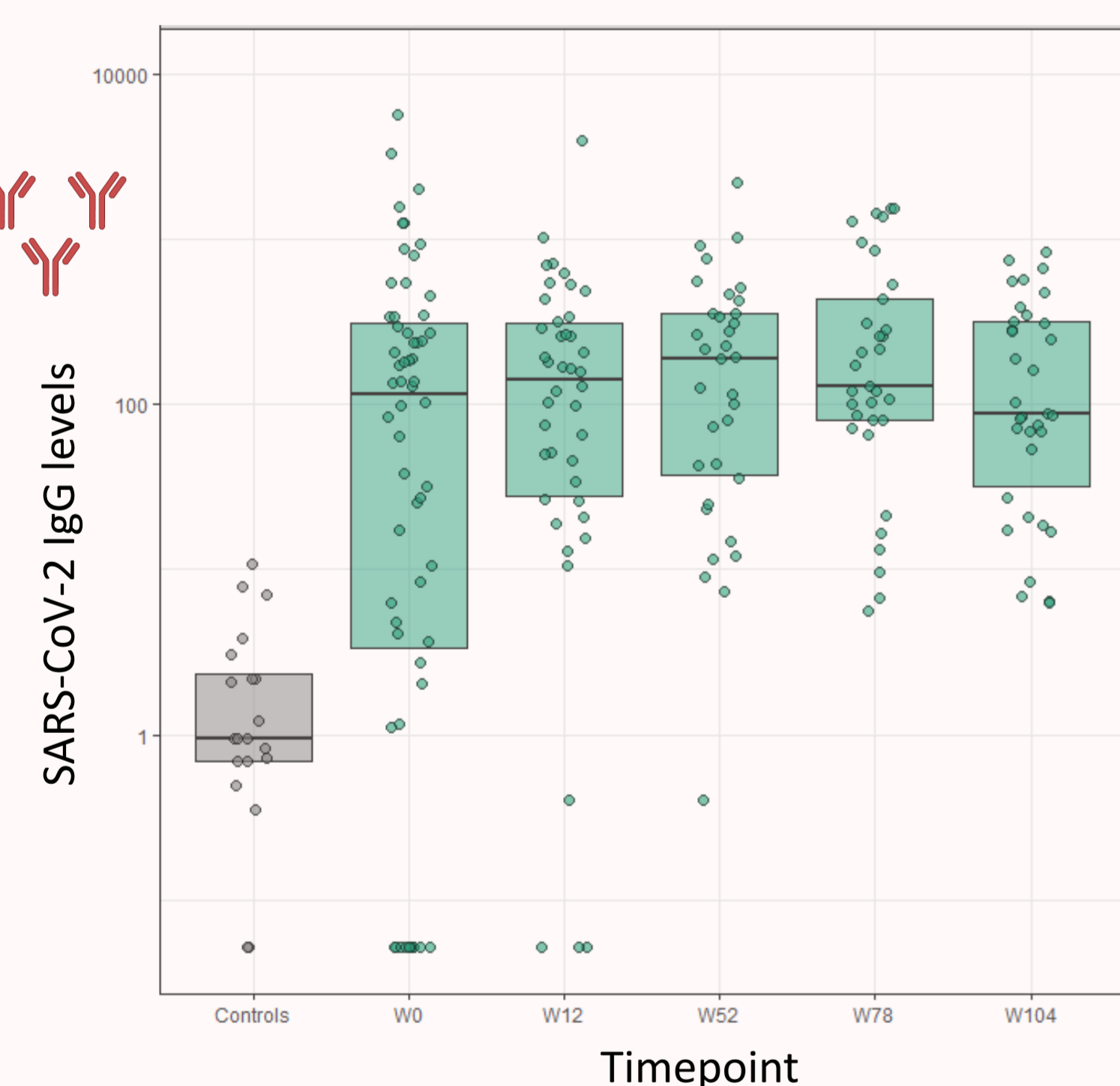


Fig.1 Serum SARS-CoV-2 IgG levels of controls (in grey) and SARS-CoV-2 infected patients at multiple timepoints, with W0 being the moment of hospitalization.

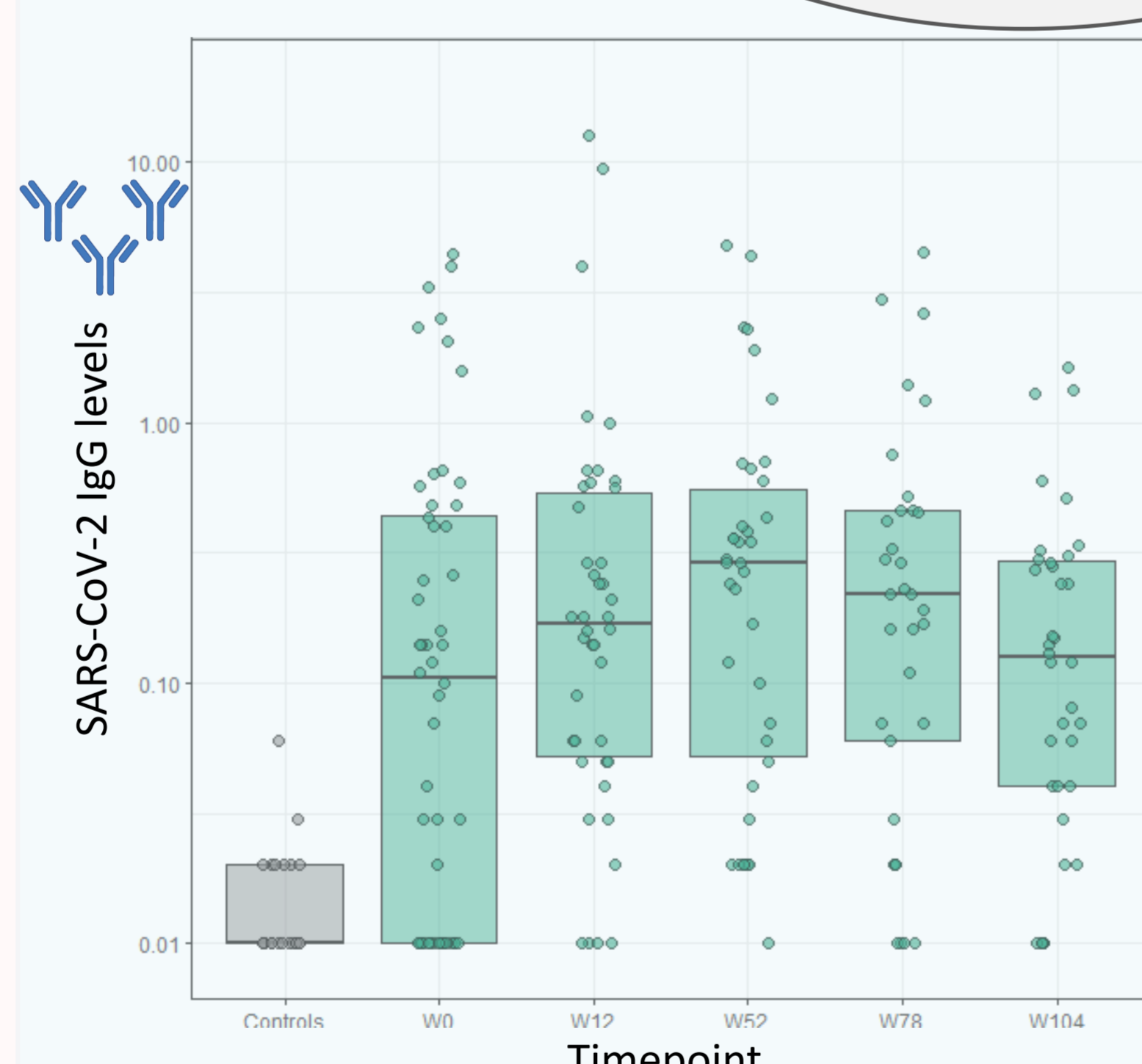


Fig.2 Saliva SARS-CoV-2 IgG levels of controls (in grey) and SARS-CoV-2 infected patients at multiple timepoints, with W0 being the moment of hospitalization.

### Outcome 2

## Antibodies don't vary across disease severity

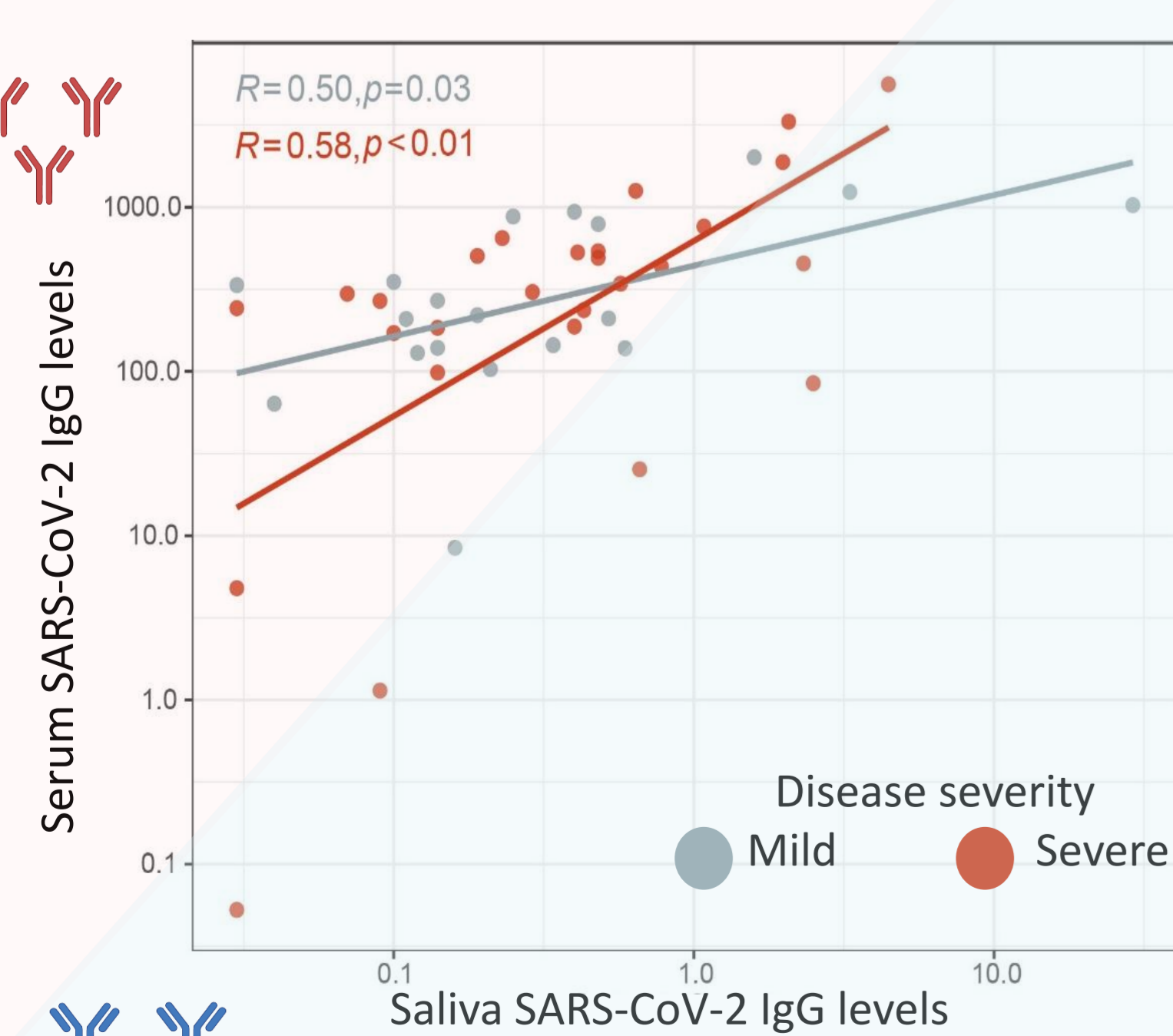


Fig.3 Correlation of saliva and serum SARS-CoV-2 IgG levels at baseline of children with a mild and a severe outcome. Coefficient of spearman correlation is shown.

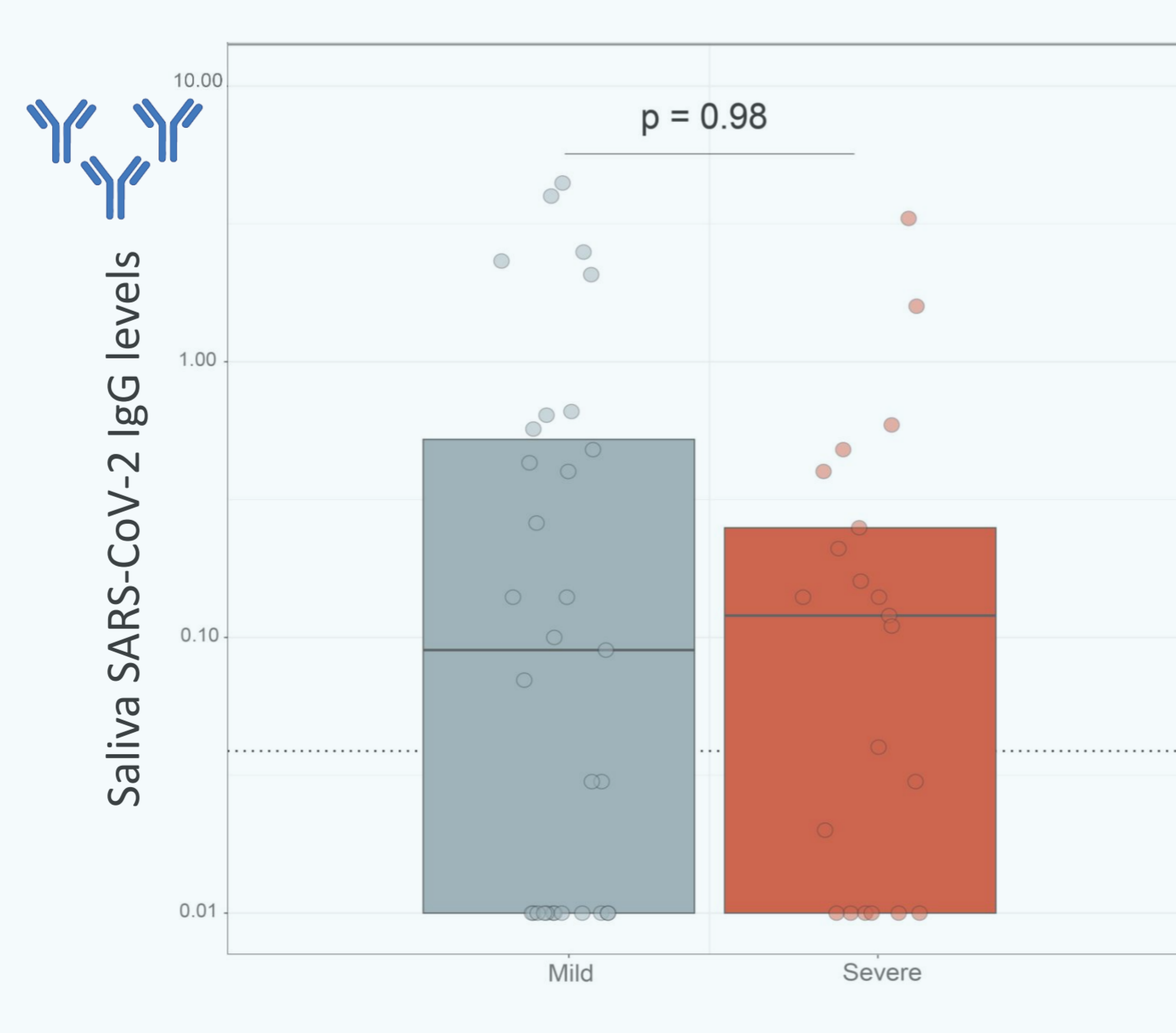


Fig.4 Saliva SARS-CoV-2 IgG levels at baseline of children with a mild and a severe outcome. p value of wilcoxon unpaired test is shown.

### Outcome 3

## Salivary cytokines associated with disease severity

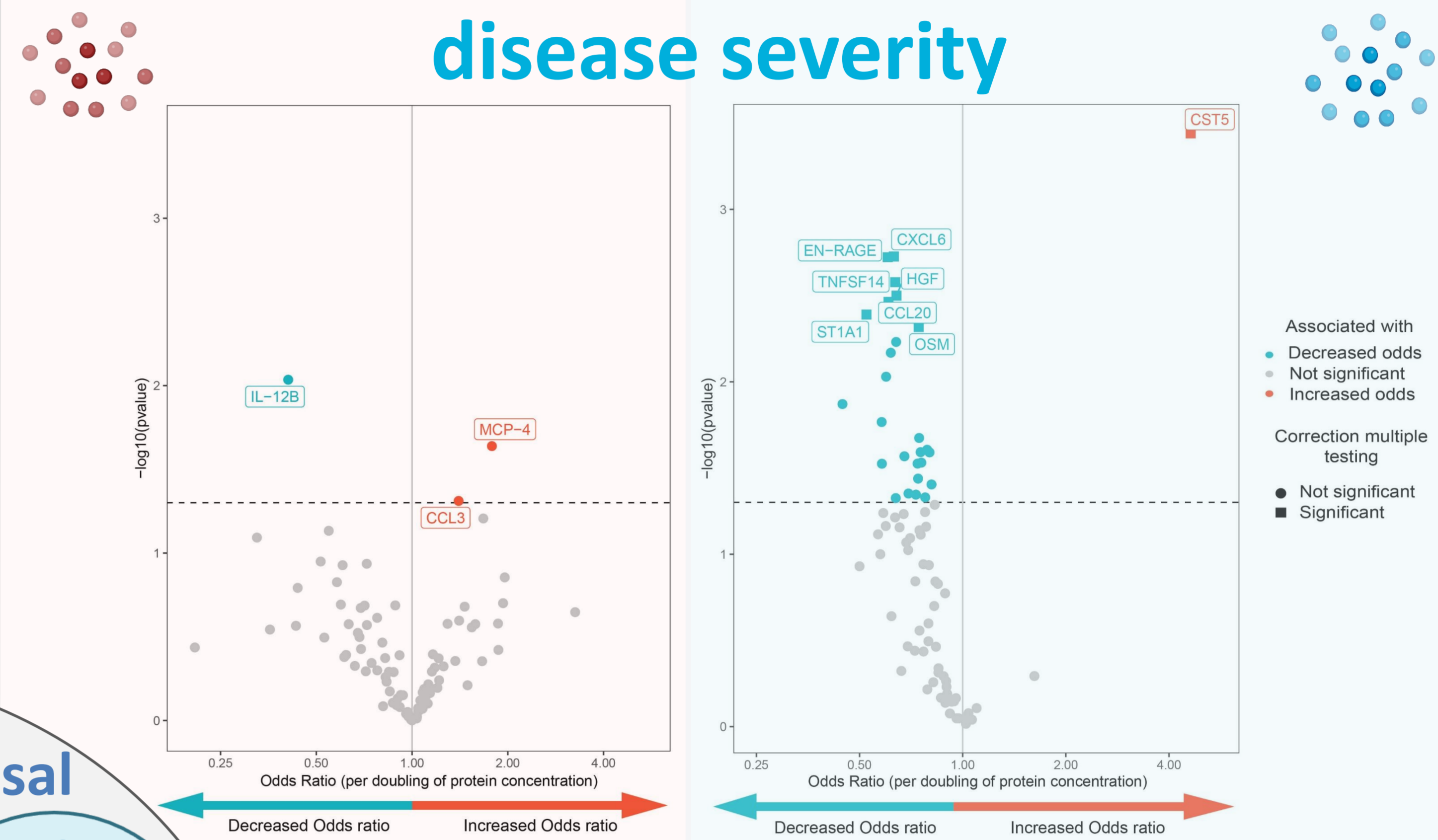


Fig.5 Volcano plot of odds ratio of protein expression in saliva and serum associated with severe disease at baseline. The x-axis shows odds ratios (OR) for severe versus mild disease; OR > 1 indicates increased odds of severe disease with higher NPX, OR < 1 indicates reduced odds. Proteins significant after correction for multiple testing are shown as squares (FDR < 0.05).

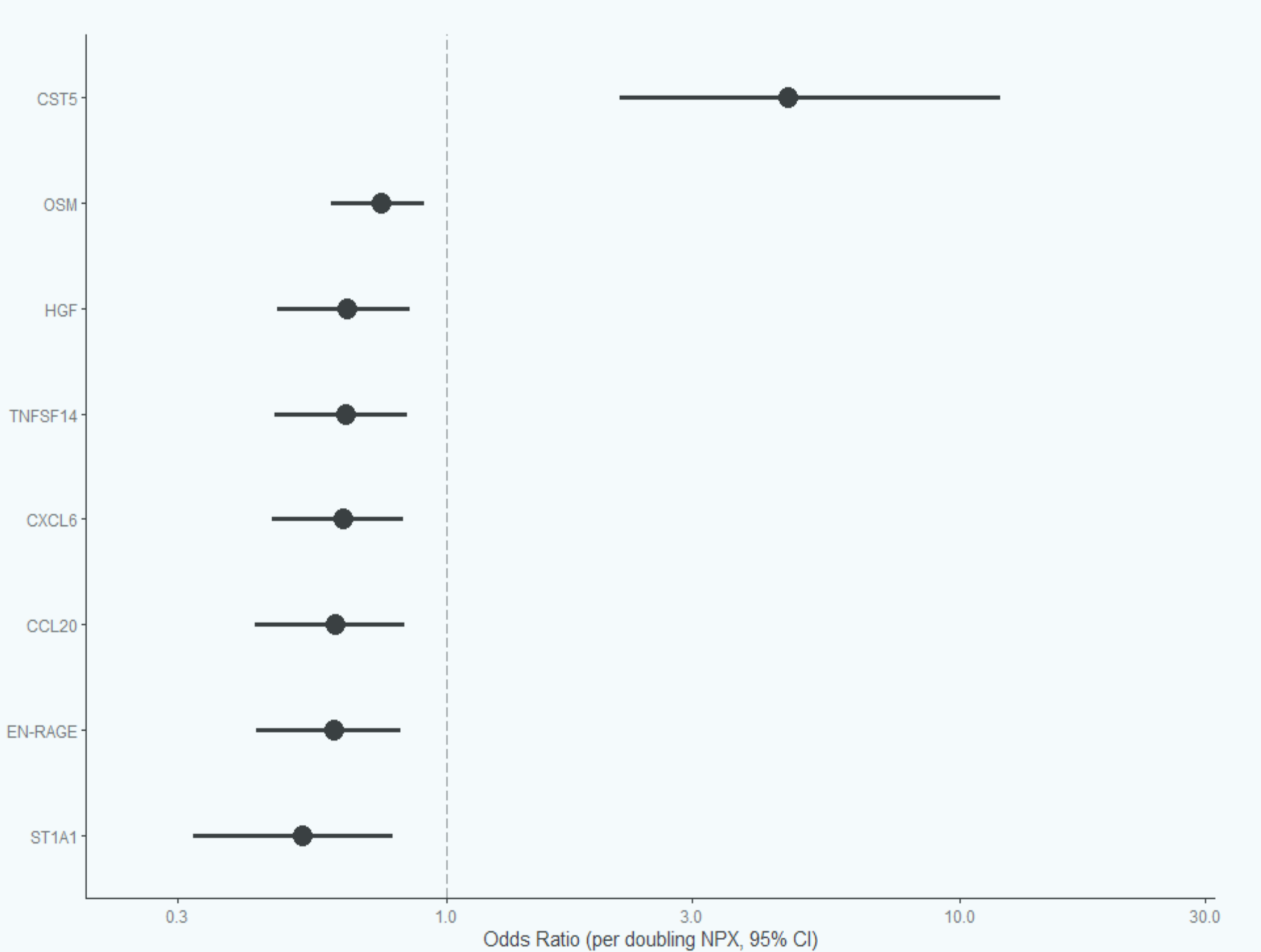
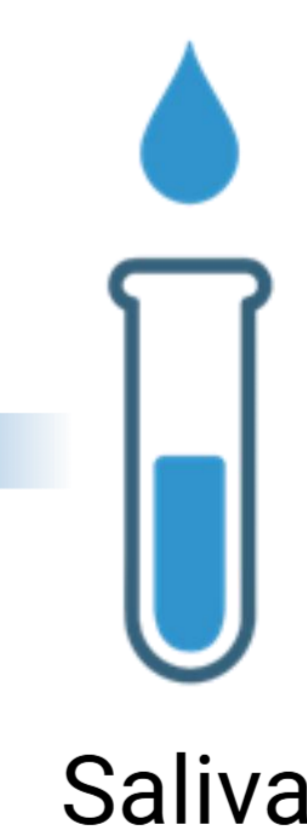


Fig.6 Forest plot showing the odds ratio per doubling of salivary NPX value associated with having a severe outcome, compared to a mild outcome. Only salivary proteins with a significant association (FDR < 0.05) are shown.

## Conclusion

Surveillance



Saliva

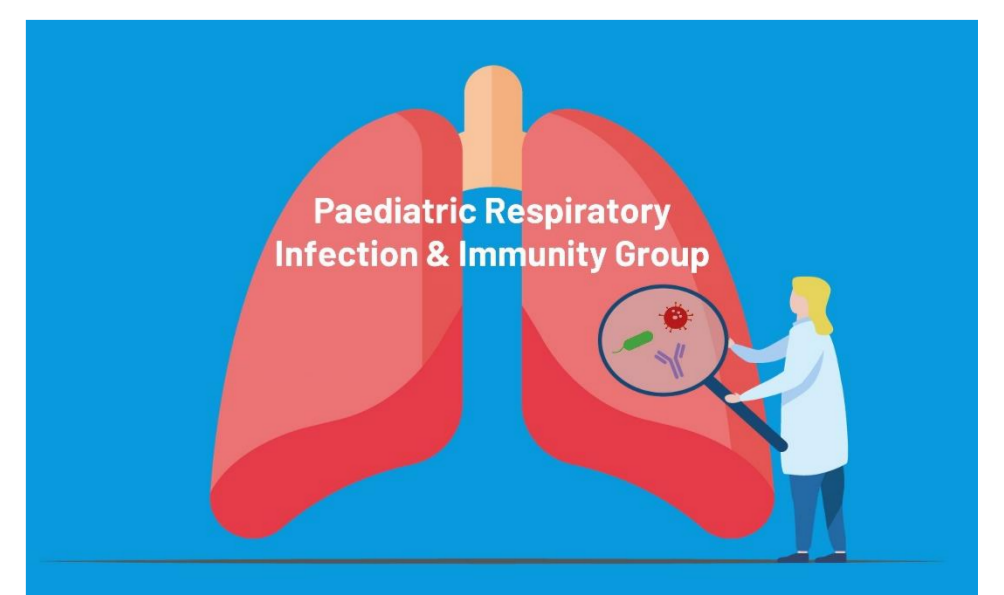
Prognostics



- Salivary pathogen-specific antibodies are readily detected in children, although not associated with disease severity
- Salivary sampling could replace **serum** sampling in context of pathogen surveillance
- Salivary cytokines could potentially help to identify children at risk of severe disease

More info

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This work is part of the VERDI project (101045989) which is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.



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