

Cite this as: Gang WANG, Ze XIANG, Wei WANG, Zhi CHEN. Seasonal coronaviruses and SARS-CoV-2: effects of preexisting immunity during the COVID-19 pandemic[J]. Journal of Zhejiang University Science B, 2022, 23(6): 451-460.
<http://doi.org/10.1631/jzus.B2200049>

Seasonal coronaviruses and SARS-CoV-2: effects of preexisting immunity during the COVID-19 pandemic

Key words: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2); Coronavirus disease 2019 (COVID-19); Preexisting immunity; Seasonal coronaviruses; Vaccines

Research Summary

This review mainly focused on Preexisting immunity against SARS-CoV-2:

- **Preexisting antibodies;**
- **Preexisting immune cells (including T cells and B cells)**
- **Preexisting antibodies protect against SARS-CoV-2 infection;**
- **Preexisting immunity may also have negative consequences, ADE and OAS**

Innovation points

- Introduction of the preexisting immunity in human.
- Emphasis of preexisting immunity on vaccination.
- Summary of the most updated research progress about preexisting immunity against SARS-CoV-2.

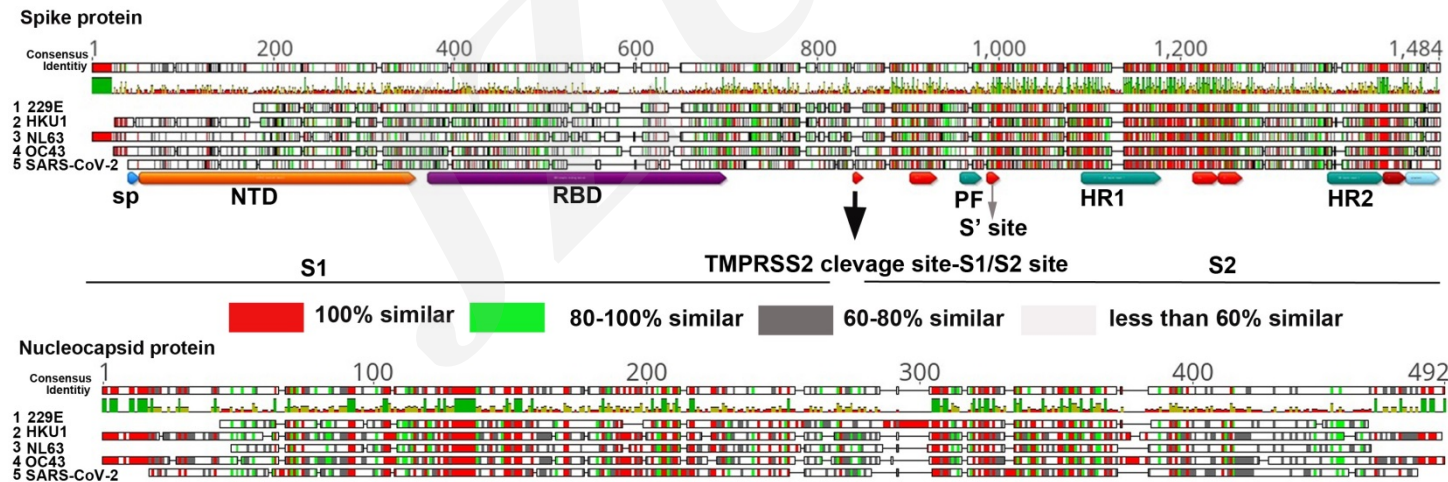


Figure 1

Innovation points

Preexisting immunity (preexisting antibodies and immune cells) against SARS-CoV-2 in humans;

Preexisting antibodies is mainly due to the seasonal prevalence of common coronavirus types;

Preexisting antibodies can help the body protect against SARS-CoV-2 infection, reduce the severity of COVID-19 and rapidly increase the immune response post-infection.

Preexisting immunity may also have negative consequences, such as antibody-dependent enhancement (ADE) and original antigenic sin (OAS).