TECHNOLOGY OFFER

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Highly active IgG3 antibodies against SARS-CoV2 and other viruses

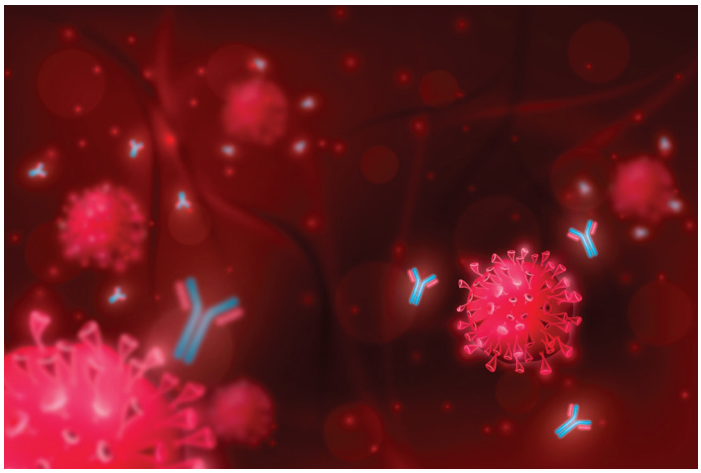
Currently immunotherapies with neutralizing antibodies are largely based on IgG1 subtypes, this is particularly the case when monoclonal Abs are used. The Impact of the IgG3 subtypes is largely unknown, despite the increased serum prevalence in SARS-CoV-2 and other viral infections.

BACKGROUND

Pre- or post-exposure immunotherapies with neutralizing antibodies (nAbs) are useful for the prevention or treatment of COVID-19. Intensive research, in an unprecedented speed, led to the isolation of monoclonal Abs that efficiently neutralize SARS-CoV-2. These SARS-CoV-2 nAbs are predominantly of the IgG1 subtype. However, seroprevalence of other subtypes (e.g. IgG3) has been observed in COVID-19 patients, indicating an important role in the defense of viral infections. While the impact of IgG1 antibodies is fairly well characterized in SARS-CoV-2 and other viral infections, the effect of IgG3 is less clear.

TECHNOLOGY

Here, we expressed a neutralizing monoclonal antibody (H4) against SARS-CoV-2 in the four IgG subtypes (IgG1, 2, 3 and 4) in wild type (WT) and glyco-engineered Nicotiana benthamiana plants. All Ab variants were generated and assembled properly and exhibited a largely homogeneous glycosylation profile. Despite similar antigen binding of Ab subtypes, the IgG3 variant exhibited an up 50 fold superior SARS-CoV-2 neutralization (NT) potency compared to the other three subtypes. Our results point to the importance of IgG3 antibodies in SARS-COV2 and possibly other viral infections and may be considered in therapy and vaccine development.



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BENEFIT

Novel antibodies based on IgG3 subtype with efficient virus neutralization activity.

REFERENCE:
202103

AVAILABLE FOR:
- License Agreement
- Cooperation
- Patent Purchase

APPLICATIONS:
Immunotherapy and vaccine development

KEYWORDS:
IgG3, Sars-CoV-2, viral infection, immunotherapy, neutralizing antibodies

DEVELOPMENT STATUS:
Proof of concept

IPR:
EP prio

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