

Neutralization of the SARS-CoV-2 coronavirus by hyperimmune serum of llama (Lama glama) .

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Abstract

Since SARS-CoV-2 emerged in China, it has spread rapidly around the world. Effective vaccines and therapeutics for SARS-CoV-2-induced disease (coronavirus disease 2019; COVID19) are urgently needed. In order to assess the immune response to immunization with SARS-CoV-2 and the ability of the immune serum to neutralize the virus infection, we immunized a llama (Lama glama) with the inactivated SARS-CoV-2 virus, and tested serum samples with an ELISA assay specific to the SARS-CoV-2, and viral neutralization by plaque-reduction neutralization test (PRNT). An increase in seroreactivity was observed for the immunized llama from week 4 onward, revealing seroconversion induced by the immunization, with the highest antibody titers on the 8 th boost. On the reactive serum sample, we performed Western Blot analysis that confirmed the positive ELISA findings, and antibodies from immune serum recognized various viral proteins. The gold standard PRNT showed a visible viral neutralization corresponding with ELISA results. Thus, our findings suggest this llama hyperimmune serum as a possible source of therapeutically antibodies against the SARS-CoV-2 virus infections to evaluate in further studies.

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