

NOVEL BRIDGE MULTI-SPECIES ELISA FOR DETECTION OF SARS-COV-2 ANTIBODIES EMPLOYING SPIKE PROTEIN AS THE UNIQUE ANTIGEN

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Abstract

Background Considering the course of the current SARS CoV 2 pandemic, it is important to have serological tests for the detection of the anti-SARS CoV-2 humoral immune response for monitoring and prognosis the different stages of the disease. **Purpose** Herein we describe a novel bridge enzyme-linked immunosorbent assay (b-ELISA) for SARS-CoV-2 antibodies detection in human and other species, employing recombinant Spike protein as a unique antigen, which is produced at high scale in insect larvae. **Results** Eighty two human control sera/plasmas and 169 COVID-19 patients' sera/plasmas, confirmed by rRT-PCR, were analysed by the b-ELISA assay. Out of the 169 patient samples, 129 were positive for IgG anti-SARS-CoV-2 and 40 were negative when they were tested by ELISA COVIDAR® IgG. When a cut-off value of 5.0 SDs was established, 124 out of the 129 COVID-19 positive samples were also positive by our developed b-ELISA (sensitivity: 96.12%). A total of 27 animal sera (5 horses, 13 rats, 2 cats and 7 dogs) were employed in order to evaluate the b-ELISA in other animal species. **Conclusion** The obtained results demonstrate that the method developed herein is versatile, as it is able to detect antibodies anti-SARS-CoV-2 in different animal species without the need to perform and optimize a new assay for each species.

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