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Study of the mechanism of viral entry inhibitors by photoinactivation using UV-C and PDZ and neutralization assay with SARS-CoV-2 pseudovirus in BSL2 laboratory

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During this period of activities, we completed work on the generation and characterization of new SARS-Cov-2 pseudotypes for neutralization assays in convalescent plasma and monoclonal antibodies, as well as an inhibition assay for recombinant S proteins, such as ACE2 receptor blockers. This methodology made it possible to perform serological testing of a COVID-19 vaccine from a large number of plasma samples in collaborative vaccine trials. We also performed neutralization assays to characterize the interaction with cells containing the ACE2 receptor protein and the subsequent internalization of the pseudovirus were performed using UV-C radiation and the photosensitizing action of antibodies complexed with the photosensitizer PDZ. For current and future studies, we produced different pseudotypes of viral particles: basically, one containing the Luciferase-IRES-ZsGreen reporter gene, the other containing only the ZsGreen reporter gene, both containing SARS-Cov-2 envelope spike proteins and a third without spike as a control pseudovirus.(1) Morphological characterizations of the pseudovirus particles were performed by transmission electron microscopy and DLS (Dynamic Light Scattering). Production and characterization of virus pseudotypes with coronavirus (CoV-2) Spike fusion proteins for BSL2 laboratory assays.(2) Finally, work has begun on writing the thesis, which is intended to be submitted at the end of the year.

Palavras-chave: Photodynamic inactivation; Pseudotiping Lentiviral Particles; SARS-CoV-2.

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Referências:

1 SADRAEIAN, M. *et al.* Study of viral photoinactivation by UV-C light and photosensitizer using a pseudotyped model. **Pharmaceutics**, v. 14, n. 3, p. 683, Mar. 2022. DOI: 10.3390/pharmaceutics14030683.

2 CRAWFORD, K. H. D. *et al.* Protocol and reagents for pseudotyping lentiviral particles with SARS-CoV-2 Spike protein for neutralization assays. **Viruses**, v. 12, n. 5, May 2020. DOI: 10.3390/v12050513.