In silico **evaluation of the vacinal potential of the mimetic peptide C10 to** S*trongyloides stercoralis* **antigen**

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Human strongyloidiasis is a parasitic disease caused by the nematode S*trongyloides stercoralis* and presents a wide geographical distribution. Transmission occurs when an individual is exposed to soil contaminated by human feces containing infectious filarial larvae. The parasite has the ability to establish an auto-infective cycle and that in some conditions of immunosuppression can make a hyperinfection fatal. The continuous use of anthelminthic used for the treatment doesn't prevent reinfection of the disease and there are still several limitations in the treatment programs against strongyloidiasis. Therefore, vaccine development is a promising alternative. This study aims to evaluate the vacinal potential of mimetic peptide C10 to S. stercoralis antigen against strongyloidiasis, using reverse vaccinology. *In silico* analyzes were performed and four proteins were aligned to the C10 peptide: insulin-like receptor protein tyrosine kinase isoform A, insulin-like receptor protein tyrosine kinase isoform B, phosphatidylinositol 3-kinase catalytic subunit and cytochrome c oxidase subunit I. For the analysis of signal peptide presence, only insulin-like receptor protein tyrosine kinase isoform A and isoform B present a possible presence of this peptide. The C10 peptide exhibits characteristics of antigenic determinants with potential to activ B cells. C10 showed low affinity for MHC class I binding and already for MHC class II molecules, showed affinity. Among the four proteins aligned, only in the protein phosphatidylinositol the peptide was available. The process of validation showed that only the cytochrome c protein was validated and obtained 87.8% of residues in the most favored region by the Ramachandran graph, being able to be in the conformation seen in its native structure. The development of vaccines using *in silico* tools is advantageous because it reduces the cost, time and sacrifice of animals that would be necessary if the whole process were carried out in the laboratory. In conclusion, the C10 peptide can be used as a vacinal potential because it may be able to activate the immune system generating a response against the parasite *S. stercoralis.*

Keywords: Strongyloidiasis, peptide, *in silico,* reverse vaccination.

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