TITLE: Screening for ZIKV powerful ligands

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The Flavivirus ZIKV is the etiological agent of Zika, an arbovirus like Dengue and Chikungunya. Until recently, this disease was considered benign and trivial without symptoms and now it is an emergent neuropathological agent associate with meningitis, myelitis, Guillain-Barré syndrome and microcephaly in neonates. The technique of Phage Display was first described in 1985 by Smith. It is considered an extremely powerful tool in obtaining libraries containing peptides or proteins. The peptide is expressed on the surface of the virus particle as a fusion protein of a phage capsid protein and can be used in the selection and identification of new ligands and receptors. Therefore, the aim of this study was to screening, direct selection and identification of ZIKV powerful ligands by using Phage Display system, an experimental high-throughput technique. Four libraries (W, K, X and Y) were used to biopanning against ZIKV plated immobilized. After 3 panning cycles of selection, 48 clones randomly selected from the last round were sequenced, the sequences were analyzed by Vector NTI software Advance 10 (Invitrogen, USA). It was possible to verify the enrichment of clones C07, H08 and A09 from library X and A07 e A10 from library Y. It was not possible verify the enrichment of clones from W and K libraries. Hereafter, the isolated phages will be amplified by *E. coli* infection and used to bioassays for determination and validation of biological activity. Further, this research involving the characterization of news ligands of ZIKV may contribute to the knowledge of the virulence mechanisms during host-pathogen interaction by identification of receptors on ZIKV surface. The isolates phages would block the early stage of infection and stop the virus entry, besides could be used for the development of diagnostic kits.

Keywords: Zika virus, ligands, Phage Display

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