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Defining the nature of the cellular receptor for LGTV

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The tick-borne encephalitis virus (TBEV) is the most important endemic arthropod-borne *flavivirus* in Europe. It provokes tick-borne encephalitis (TBE), an infection that can cause mild to severe forms of neurological diseases such as meningitis or encephalitis. However, the life-cycle of the virus and in particular the first steps of infection are still poorly understood. To better understand the life-cycle and pathogenesis of TBEV, identification of the virus-host interactions such as attachment to and entry into host cells are of utmost importance.

In this study, we used Langat virus (LGTV), the naturally attenuated form of TBEV, as a model to investigate the nature of the cellular receptor(s) used by TBEV for attachment and entry. For that, we treated cells with compounds that cleave or inhibit several receptor types (proteins, *N*-glycans, *O*-glycans, glycolipids, sulfated glycans and sialic acids) and measured the attachment of LGTV. Also, we made use of CHO cells lacking *N*-glycans or sialic acids to quantify the binding of LGTV. According to our results, the cellular receptor for LGTV seems to include a protein component, as shown by the decrease in binding observed after treatment with proteases. Furthermore, no decrease in binding was found after inhibition of the glycans, which suggests that glycans are not involved in the attachment of LGTV to host cells.

Our results strongly suggest that the receptor for LGTV is of protein nature. Based on these results, a proteomic approach is currently ongoing in order to identify the specific receptor protein for LGTV.

Biography

Raquel Rodrigues has completed her PhD at the age of 28 from the École Normale Supérieure de Lyon in France and is now undergoing postdoctoral studies at the Department of Clinical Microbiology of the Umeå University in Sweden. She has published several papers in virology journals and has presented her findings in virology and infectious diseases conferences.

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