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NS3of Bluetongue virus interferes with the innate antiviral response

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Bluetongue disease is a major animal health concern transmitted through the bites of *Culicoides* vectors. Bluetongue virus (BTV), the etiologic agent of the disease, is a dsRNA virus belonging to the genus *Orbivirus*, into the *Reoviridae* family. BTV infection triggers the production of type-I interferon (IFN-I) and genomic dsRNA is a strong IFN-I inducer. We recently showed that RIG-I-like receptor pathway is involved in the innate immune response following BTV dsRNA transfection. Most of viruses have evolved versatile strategies to escape the IFN-I response but nothing is known on the ability of BTV to counteract the innate response. In this study, we demonstrated that BTV serotype 8 (BTV-8) can dampen the type-I interferon response and that the non-structural protein 3 (NS3) is involved in this process. In order to identify viral components involved in this inhibition and to explore its possible link with viral pathogenesis, we performed a yeast-two hybrid screen using NS3 BTV-8 as bait and a human cDNA library as prey. We describe here the result of this screen and discuss its potential link to virulence strength. Amino acids sequences/residues essential for the dedicated interaction will be changed onto the corresponding gene segment in a reverse genetic system to assess whether innate response can be restored at the virus level.

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