

IDENTIFICATION OF REASSORTANT BLUETONGUE VIRUSES FROM THE WESTERN MEDITERRANEAN REGION

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Bluetongue virus (BTV) is the species of the genus *Orbivirus* of the family *Reoviridae*. BTV can infect most ruminants, causing a severe haemorrhagic disease called bluetongue in sheep. BTV is transmitted among ruminant hosts by certain species of *Culicoides* (biting midges). The BTV genome is composed of ten linear double-stranded (ds) RNA genome segments, encoding seven structural and three non-structural proteins. The segmented nature of the genome allows different BTV strains infecting the same cell to exchange (reassort) genome segments.

Nine BTV serotypes have been detected in Europe since 1998, including strains belonging to both eastern (BTV-1, 9, 16) and western lineages (BTV-1, 2, 4, 6, 8, 11). Live attenuated monovalent vaccine strains of BTV-2, 4, 8, 9 (western group) and BTV-16 (eastern group) have also been used in the Mediterranean region, in attempts to minimise virus circulation. The release of these vaccine strains, some of which have persisted in the field (including BTV-2 and 16), has added further genetic diversity,

generating an unprecedented mix of field and vaccine strain viruses. These events have provided unique opportunities for genome segment exchange (reassortment) between different BTV strains and topotypes. Indeed, a strain of BTV-2, derived by reassortment between vaccine strains of BTV-2 and 16 has been previously detected in Italy during 2002.

Full genome sequence analysis of BTV-2 and BTV-4 isolates (1999-2004) from the Western Mediterranean region helped to identify multiple reassortant viruses, involving the exchange of several different genome segments. Reassortant viruses were identified as containing genes derived from different western field strains, from western field and vaccine strains, and from eastern field and western vaccine strains. The detection of these reassortant BTVs in Europe highlights concerns about the use of live BTV vaccines in the region.

KEYWORDS: BLUETONGUE VIRUS – SEROTYPE – EUROPE.

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