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Title: Incursion of Schmallenberg virus into Great Britain in 2011 and emergence of variant sequences in 2016

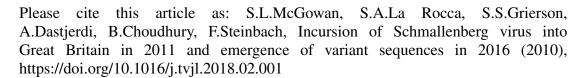
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## ACCEPTED MANUSCRIPT

### **Original Article**

Incursion of Schmallenberg virus into Great Britain in 2011 and emergence of variant sequences in 2016

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#### **Abstract**

Schmallenberg virus (SBV) is a vector-borne orthobunyavirus in the family *Bunyaviridae*, first identified in Germany before rapidly spreading throughout Europe. To investigate the events surrounding the incursion of this virus into Great Britain (GB) and its subsequent spread, archived sheep serum samples from an unrelated field survey in 2011 were analysed for the presence of SBV specific antibodies, to determine the earliest date of seroconversion. This serological study, along with analysis of the spatial spread of the sources of samples submitted for SBV analysis after January 2012, suggests that SBV entered GB on more than one occasion and in more than one location. Phylogenetic analysis of SBV sequences from 2012 ovine samples, from a variety of counties and dates, demonstrated a non-linear evolution of the virus, i.e. there was no distinct clustering between host species, geographical locations or during the outbreak. This also supports the notion of multiple viruses entering GB, rather than a single virus incursion. Premature termination signals were present in several non-structural putative protein sequences. One SBV sequence exhibited large deletions in the M segment of the genome. After the first outbreak in 2011-2012,

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