



Replication modes of Maize streak virus mutants lacking RepA or the RepA–pRBR interaction motif

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ABSTRACT

The plant-infecting mastreviruses (family *Geminiviridae*) express two distinct replication-initiator proteins, Rep and RepA. Although RepA is essential for systemic infectivity, little is known about its precise function. We therefore investigated its role in replication using 2D-gel electrophoresis to discriminate the replicative forms of Maize streak virus (MSV) mutants that either fail to express RepA (RepA⁻), or express RepA that is unable to bind the plant retinoblastoma related protein, pRBR. Whereas amounts of viral DNA were reduced in two pRBR-binding deficient RepA mutants, their repertoires of replicative forms changed only slightly. While a complete lack of RepA expression was also associated with reduced viral DNA titres, the only traces of replicative intermediates of RepA⁻ viruses were those indicative of recombination-dependent replication. We conclude that in MSV, RepA, but not RepA–pRBR binding, is necessary for single-stranded DNA production and efficient rolling circle replication.

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