Characterization of an E2-Substituted Cstrain Vaccine Candidate with Potential Diva Vaccine Properties

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An advantage of the use of chimeric pestiviruses as modified live vaccines against classical swine fever (CSF) resides in their capacity to be manipulated to achieve the characteristics desired for safe and efficacious DIVA vaccines. We have recently described a new chimeric virus, Riems26_E2gif engineered specifically for this purpose (Rasmussen et al. 2010). The E2 substituted Riems26_E2gif was derived by homologues recombination of the full-length E2 protein encoding genome region from Border disease strain Gifhorn into a bacterial artificial chromosome (BAC) harbouring the complete genome of the CSFV vaccine strain C-Riems. This new chimeric pestivirus represents a C-strain based marker vaccine candidate. We have characterised the replication kinetics of Riems26_E2gif and compared it to the parental C-Riems clone. Autonomous replication of chimeric RNA could be observed after electroporation of in vitro transcribed RNAs into porcine PK15 cells. Further passage on PK15 cells revealed infectious chimeric virus with low titers. However, passage of the chimeric virus on ovine SFT-R cells revealed high titers of virus and were more efficient than passages on porcine cells. Data on characterisation of this new E2-substituted C-strain vaccine candidate will be presented and discussed in comparison to other chimeric viruses like CP7_E2alf and CP7_E2gif (Reimann et al., 2004; Rasmussen et al., 2007).

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