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TITLE
ASSESSMENT OF THE REPLICATION OF PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME MODIFIED LIVE VIRUS ATTENUATED VACCINES IN PORCINE ALVEOLAR MACROPHAGES

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CONTENT
IntroductionThe method of attenuation influences the properties of modified live virus (MLV) vaccines. PRRSV is typically attenuated on simian cells, but a new vaccine, Suvaxyn PRRS MLV (vaccine S), was attenuated on a hamster-origin engineered cell line expressing the porcine CD163 receptor. The ability of this vaccine and four other European PRRSV vaccines to infect porcine alveolar macrophages (PAMs) was compared in vitro and in vivo. Materials and methodsFor in vitro comparison vaccines were serial diluted and inoculated in PAMs. At different times a direct immunofluorescence assay was conducted to detect virus replication. For in vivo comparison forty-five 3-week-old PRRSV naïve pigs were divided into five groups and vaccinated with one of the five vaccines. Weekly, pigs were bled and three per group were euthanized for PAM collection by bronchoalveolar lavage (BAL). Virus in sera was quantified by virus isolation in PAMs and RT-qPCR, and in BAL samples by RT-qPCR. ResultsVaccine viruses differed in their ability to infect PAMs in vitro. Virus from vaccine S grew readily and that from vaccines B and D at a reduced level. Virus in vaccines A and C had lost tropism for PAMs. In vivo, vaccine viruses were present in serum of almost all pigs at all timepoints. In vaccines S and B groups virus from serum could be re-isolated from PAMs but for A, C and D re-isolation was near or below the limit of detection. Viruses from vaccines S and B were consistently detected in BAL samples as was D at Days 14 and 21, but not Day 7. ConclusionsAbility to replicate in PAMs post-vaccination could have implications for vaccine virus multiplication and immune system stimulation. A vaccine attenuated in a cell line expressing the porcine CD163 receptor showed more efficient replication than other PRRS MLV vaccine viruses tested.