

A live attenuated vaccine against *Salmonella abortus ovis* abortion in ewes, par P. PARDON, R. SANCHIS (*), F. LANTIER, J. MARLY. *Station de Pathologie de la Reproduction, I.N.R.A., Nouzilly 37380 Monnaie, France.* (*) *Laboratoire National de Pathologie des Petits Ruminants, Ministère de l'Agriculture, Services Vétérinaires, 06051 Nice Cedex, France.*

Salmonella abortus ovis causes an infectious and contagious disease in sheep which results essentially in abortion. This Gram-negative bacterium is not pathogenic for other animal species or for man (unusual cases recorded in goat).

The effects of intravenous, oral and subcutaneous routes of inoculation with different doses of viable *S. abortus ovis* have been compared in order to select a technique for reproducing an abortive infection. The subcutaneous inoculation of 10^{10} bacteria to ewes at mid-gestation frequently induced a sublethal but abortive infection (Pardon *et al.*, 1983). Using this route and inoculation dose, we found a relationship between the state of development of the foeto-placental unit and the probability of abortive infection. As in natural infection, abortion occurred more frequently at mid- or late gestation than earlier (Sanchis and Pardon, 1983 ; unpublished results).

Considering the epidemiological, pathogenic and immunological background, a live attenuated vaccine seemed the best solution for obtaining the normal development of the foeto-placental unit in enzootic areas (Pardon *et al.*, 1980). Streptomycin-dependent and streptomycin-independent reverse mutant strains were selected and their residual virulence and immunogenicity were tested (Lantier, Pardon and Marly, 1981) using a murine model of infection (Pardon and Marly, 1979). The best protection was given by independent reverse-mutants which had kept the residual capacity of *in vivo* dissemination and multiplication.

The virulence of some of the mutant strains was tested in sheep. After comparing the protection induced by a streptomycin-dependent strain and a reverse strain with a subcutaneous challenge at mid-gestation, the reverse strain Rv6 was further studied (Pardon *et al.*, 1980). A subcutaneous immunizing dose of 10^8 viable Rv6 bacteria protected ewes against abortion and excretion, without excretion of the vaccinal strain, even in ewes vaccinated at mid-gestation (Pardon *et al.*, 1980 ; Sanchis and Pardon, 1981 ; unpublished data). Experiments conducted in natural conditions confirmed the innocuousness and immunogenicity of the lyophilized vaccine.

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