



doi:10.1016/0165-2427(89)90168-2 | [How to Cite or Link Using DOI](#)

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Immune response of lambs to experimental infection with Orf virus

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Accepted 6 February 1989.

Available online 13 November 2002.

Abstract

A group of six specific pathogen free (SPF) lambs were infected epidermally with Orf virus. Seven weeks later they were reinfected. For a period of 4 weeks after each inoculation they were observed clinically and blood was collected for analysis of virus specific antibody measured by ELISA and peripheral blood lymphocyte (PBL) proliferative response to various viral antigens. After the primary infection all animals showed clinical signs of Orf, namely vesicle formation which became pustular followed by scabbing; this steadily became heavier prior to shedding and the resolution of the infection by about 4 weeks. The severity of infection varied within the group. Little lymphoproliferative activity was recorded during the primary infection, although five/six test animals had positive lymphoproliferative responses to an sodium dodecyl sulphate (SDS) solubilised scab purified Orf virus preparation at some point between days 7 and 14 after inoculation. All animals seroconverted to Orf virus, lymphoproliferative activity always preceding specific antibody detection. Resolution of the secondary infection was very rapid. Vesicles were visible by day 2 after inoculation which became pustular followed by scab formation and resolution in the majority of animals by day 8. All animals showed a significant (> four-fold) rise in specific antibody titre following secondary inoculation. The proliferative activity of PBL's was much greater than that recorded for the primary infection although the magnitude of this response varied greatly between individuals.