

PVAC-387**A new ORFV-based highly efficient Rabies vaccine for pre-and post-exposure prophylaxis**

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Rabies represents still a major public health problem and improved vaccines that mediate a strong and long-lasting immunity after a single application are desirable. Recently we demonstrated the usefulness of Orf virus (ORFV, Parapoxvirus) as a new and safe vector vaccine for the induction of a fast, strong humoral and cellular immune response against the expressed foreign antigen.

In the present study we show the generation of a new ORFV recombinant containing the Rabies virus (RV) glycoprotein G. The correct and strong intracellular as well as surface expression of the RV glycoprotein was proven by immunofluorescence and Western blotting. Immunization of mice representing a non-permissive host for the ORFV vector resulted in a strong virus neutralizing serum antibody (VNA) response. Mice immunized with the new ORFV recombinant by different application routes were completely protected against challenge infection with high doses of the virulent RV strain CVS, even after a single immunization. The importance of CD4 helper T-cells for the ORFV recombinant-mediated protection was shown by *in vivo* depletion of CD4- and/or CD-8 T-cells. Finally, post-exposure immunization experiments of mice indicated the usefulness of this ORFV recombinant for therapeutic vaccination, since protection could be achieved even 3 days after peripheral challenge RV infection.

Conclusively, the presented data exhibit another example of a new ORFV recombinant, which successfully mediates an effective and sustained protective immune response indicating the general applicability of the ORFV vector system.

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