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Titel des Beitrags: Therapeutic immunomodulation using a virus--the potential of inactivated orf virus.

Abstract: Viruses can manipulate the immune response against them by various strategies to influence immune cells, i.e. by over-activation leading to functional inactivation, bypassing antigen presentation or even suppression of effector functions. Little is known, however, about how these features of immune regulation and modulation could be used for therapeutic purposes. Reasons for this include the complexity of immune regulatory mechanisms under certain disease conditions and the risks that infections with viruses pose to human beings. The orf virus (ORFV), a member of the Parapoxvirus genus of the poxvirus family, is known as a common pathogen in sheep and goats worldwide. The inactivated ORFV, however, has been used as a preventative as well as therapeutic immunomodulator in veterinary medicine in different species. Here, we review the key results obtained in pre-clinical studies or clinical studies in veterinary medicine to characterise the therapeutic potential of inactivated ORFV. Inactivated ORFV has strong effects on cytokine secretion in mice and human immune cells, leading to an auto-regulated loop of initial up-regulation of inflammatory and Th1-related cytokines, followed by Th2-related cytokines that attenuate immunopathology. The therapeutic potential of inactivated ORFV has been recognised in several difficult-to-treat disease areas, such as chronic viral diseases, liver fibrosis or various forms of cancer. Further
research will be required in order to evaluate the full beneficial potential of inactivated ORFV for therapeutic immunomodulation.