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Abstract (poster session)

Using recombinant E. coli as a novel vaccine against foot and mouth disease virus

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Background: Foot-and-mouth disease (FMD) is a highly contagious disease of livestock that causes severe economic loss in susceptible animals and it may lead to a new outbreak of FMD because of either incomplete inactivation of Foot and Mouth Disease Virus (FMDV) or the escape of live virus from vaccine production workshop. Thus, it is urgent to develop a novel FMDV vaccine that is safer, more effective and more economical. We have designed a peptide-based vaccine for FMD effective in livestock. Display of heterologous proteins on the surface of microorganisms, enabled by means of recombinant DNA technology, has become an increasingly used strategy in various applications in microbiology, biotechnology and vaccinology. Methods: Several different FMDV peptides containing the immunogenic regions of vp1 were fused to the OMPA of Salmonella and transferred into E.coli .After induction the expression was shown by SDS PAGE and to confirm the presence of this fused protein on the surface of E.coli, fractionation method performed, By ELISA method the activity of the epitopes approved and the lyophilized bacteria was inoculated to the mice feed and the immunogenicity was evaluated. Results: The immunogenicity of these recombinant bacteria was tested by immunizing the mice. Ten days after the last inoculation, the animals were bled and the sera analyzed to evaluate the presence of Antibody against FMDV by ELISA and Western blot. The results show extra stimulation in the immune system of the mice which the recombinant bacteria were inoculated in their daily feed. Conclusion: These result suggested that designing a recombinant peptide vaccine would be a good and possible way to gain high levels of immunity in veterinary medicine but there is still a strong need for additional studies.