

DERMAL IMMUNE RESPONSES AGAINST PSOROPTES OVIS IN TWO CATTLE BREEDS AND EFFECTS OF ANTI-INFLAMMATORY DEXAMETHASONE TREATMENT ON THE DEVELOPMENT OF PSOROPTIC MANGE

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Psoroptic mange is a common disease of livestock, caused by *Psoroptes ovis*. Compared to Holstein Friesian (HF) cattle, the Belgian Blue (BB) cattle breed is highly susceptible to the infestation. However, the mechanism for this difference is still unclear. To determine the factors responsible for this breed susceptibility, the immune response to *P. ovis* was studied in experimentally infested BB and HF cattle, using clinical signs, histology, immunohistochemical profiling and gene expression analysis of skin biopsies. The mite numbers and lesion area of BB cattle were greater than in HF during the whole study period. Significant influxes of eosinophils in the epidermis and dermis were detected in comparison with the pre-infestation samples in both breeds, with significantly higher eosinophils in BB cattle at 6 weeks post infestation (wpi). Mast cell numbers were unaffected at all stages of infestation in HF, but were significantly elevated relative to pre-infestation in BB cattle at 2 and 6 wpi. The more pronounced cutaneous eosinophilia and higher IL-4 levels at 6 wpi in BB cattle suggest that a Th2-type immune response is underlying the higher susceptibility of the BB breed. In naturally infested BB cattle, development of the psoroptic mange lesions and eosinophils and CD3+ T-cell areas were severely depressed after anti-inflammatory treatment with dexamethasone. Together, these results suggest that a stronger Th2-type immune response to *P. ovis* causes the skin lesions in psoroptic mange in BB cattle and that anti-inflammatory treatment could potentially be an alternative to control the pathology caused by this parasite.