

## **Immune Mechanisms and therapeutic potential of Toll-like receptor agonists**

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Toll like receptors (TLRs) are transmembrane glycoproteins that recognize conserved microbial molecules and trigger innate immunity leading to initiation of adaptive immunity. TLR-mediated activation of immune cells results in upregulation of cytokines, chemokine and costimulatory molecules. These early innate responses control pathogen spread and initiates adaptive immune responses. The potential of TLR agonists as immunotherapeutic agents and vaccine adjuvants has been demonstrated in laboratory animal models of infectious diseases, allergy and cancer. However, TLR agonists are far less potent immune activators in humans and large animals. This disparity in responses between rodents and mammals has been attributed primarily to differences in TLR expression in the various species. I will discuss immune mechanisms and the potential applications of TLR agonists in domestic animals.

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