Cytokines adjuvants for infectious bursal diseases vaccine

Cytokines have been considered as potential candidates for vaccine adjuvants based on their immunoregulatory roles (1-2). In this study, we evaluated the efficacy of recombinant chicken interleukin-2 (rChIL-2) and recombinant chicken interleukin-18 (rChIL-18) as vaccine adjuvants to combat against the infectious bursal disease virus (IBDV). Infectious bursal disease (IBD) is an acute contagious viral disease caused by infections of IBDV, resulting in severe immunosuppression in young chickens, and therefore threatens to the poultry worldwide (3). After immunization with or without coadministration of recombinant chicken interleukins (rChIL-2, rChIL-18, rChIL-2 plus rChIL-18), immune responses were examined and compared among vaccinated chickens. The adjuvancity of cytokines was assessed based on antibody responses, cytokines expressions, and histological analyses. All vaccinated chickens showed comparable levels of specific antibodies production. However, elevated levels of IL-2Rα, IFN-γ, inducible nitric oxide synthase (iNOS) mRNAs and less severity of bursal atrophy were observed in chickens received IBD vaccine and interleukin. In conclusion, both cytokine adjuvants (rChIL-2 and rChIL-18), alone or in combination, may enhance vaccine immunogenicity in vivo. Our results indicate that rChIL-2 and rChIL-18 may serve as good adjuvants for IBD vaccine.

References: