

Structural and functional characterization of interleukin-1 from pet bird

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Most of current avian vaccination put emphasis on the poultry flock such as chickens, preventing them against contagious diseases. In addition, geese and other pet birds are also susceptible to viral infection but limited vaccines are available. The use of cytokines as vaccine adjuvants are potential candidates that may enhance immune responses to vaccine antigens. Interleukin-1 (IL-1) is an important proinflammatory cytokine that has been linked to host immune and proinflammatory responses. Here the X-ray crystallographic data of pet bird IL-1 were collected at NSRRC 13B and 13C beamlines. Chicken IL-1 acted as the search model to generate the pet bird IL-1 structure with molecular replacement along with CCP4 program. For functional investigation of pet bird IL-1 are administered intravenously following by the serum cortisol analysis.

According to our previously established core platform, engineered chicken IL-1 could act as an effective vaccine adjuvant. Therefore, structure-based protein engineering of pet bird IL-1 may increase the bioactivities as well as therapeutic applications.