**MOLECULAR CLONING OF CHICKEN INTERLEUKIN-23 SUBUNIT P19 AND**

**FUNCTIONAL ANALYSES OF CHICKEN INTERLEUKIN IL-23 COMPLEX**

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**Background**

Interleukin (IL)-23 play an important role in protective immunity against intracellular pathogens, as well as inflammatory and organ-specific autoimmune diseases.

**Objectives**

The present study is a first attempt to aim cloning of chicken IL-23p19 (chIL-23α) and the function of the IL-23 complex in birds using a chicken HD11 macrophage and CU91 T cell lines.

**Materials & Methods**

ChIL-23α and ChIL-12p40 were originally identified and by PCR and cloning. Recombinant ChIL-23α and ChIL-12p40 protein was purified using HisPur cobalt resin. The mRNA or protein expression level for cytokines or pathway genes were identified by quantitative RT-PCR and ELISA. Signal transduction was analyzed by Western blots and immunocytochemical staining. Data are represented as the mean ± SEM of three independent experiments for each group (n = 3) and were analyzed with the SAS® 9.4 statistical program.

**Results**

Multiple sequence alignments and phylogenetic tree of chIL-23α with known IL-23α amino acid sequences of other species revealed regions of amino acid conservation, and a close relationship between chicken and mammalian. Chicken IL-23α consisted of four exons and three introns showing similar pattern in humans and mice. The mRNA expression of IL-23α was detected high than IL-12p40 and IL-12p35 mRNA in several organs of chickens infected with *Salmonella*. Furthermore, chIL-23 complex is associated with IL-23R, IL-12Rβ1 receptors that activate the JAK2/TYK2, STAT1/3, SOCS1 genes, and induced proinflammatory cytokines in immune cells.

**Conclusion**

These results indicate that chIL-23 has proinflammatory properties and activates the JAK/STAT signaling pathway.

*Key words*: Chicken, cytokine, IL-23, IL-12, signaling pathway