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Components of avian immune system

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Abstract

The immune system is generally divided into two main branches: the adaptive (specific) and the innate (non-specific) immune responses. Components of the immune system (i.e. adaptive and innate) include T-lymphocytes, B-lymphocytes, macrophages, natural killer (NK) cells, heterophils, basophils, diverse humoral communication factors such as eicosanoids and cytokines (e.g., interleukins, interferons, tumor necrosis factor) and effector molecules (e.g. immunoglobulins, complement, lysozymes, nitric oxide). Additionally, some tissues in the body are dedicated to support the immune system such as dendritic, reticular and stromal cells. Regulation, interaction, and communication between various elements of the specific and the innate immune responses result into birds possessing a highly sophisticated immune system, capable of protecting against invading pathogens. The avian lymphoid tissues can be divided into the primary and the secondary. The primary lymphoid tissues include the bursa of Fabricius and the thymus. The secondary lymphoid tissues include the spleen, the gut associated lymphoid tissue (GALT), the bronchus associated lymphoid tissue (BALT), the eye-associated lymphoid tissue (EALT) and the pineal gland. The defence mechanism of the immune system can be divided into two branches, namely the humoral immune response and the cell mediated immune response. Activation of these two branches is triggered by the activation of Th-cells (T-helper cells).

Biography

She graduated as honor student from Kuwait University with Zoology as major and Microbiology as minor. She joined KISR in 1996 as a Research Assistant and was promoted to get her MSc in Immuno-Parasitology from University of Manchester in 2003 and Ph-D in Immunology from University of Reading in 2010, united Kingdom. She was the leader of three client funded projects, and three general activities. She participated in eight client-funded and in-house projects. Dr. Hanan authored and co-authored 25 refereed articles. She also authored and co-authored 20 papers presented in international conferences and 7 progress and final in-house KISR (Kuwait Institute for Scientific Research) reports.