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THE DEVELOPMENT STAGES OF IMMUNE SYSTEM. ROLE OF GENE-ENVIRONMENT INTERACTION IN THE ALLERGIC DISEASE MANIFESTATION.

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Abstract:

The increasing prevalence of the allergic disease is urging a solution. Many studies have demostrated that the predisposition to develop allergic disease is strongly related to the model of the immune system development. The clear clue until now is the Th 2 response in allergic individuals. This deviation begins in utero and continues in early life under environmental exposure including nutrition, microbiome, activity patterns, and modern pollutants. In this way, understanding the common risk factors responsible for one disease means to find the common solutions to prevent them.

The Immune system and the differences between atopic and non-atopic children

The immune system is a well-organized network composed of lymphoid organs, cells, and cytokines. The main function of this system is the host defence. His role can be better shown in cases of **underactivity**, resulting in severe infections and tumours, or **overactivity** being responsible for allergic and autoimmune disease. Immunity is divided into two parts which are different in their speed and specificity of action. The first one is the **innate immunity** which includes the physical, chemical, and microbiological barriers also neutrophils, monocytes, macrophages, complement, cytokines, and acute phase proteins. It acts immediately and not specifically. The second is the **adaptive immunity** which consists of antigen-specific reactions mediated by T and B lymphocytes. It is characterized by delayed and specific mode of action (1).

Fig.1 Immune system