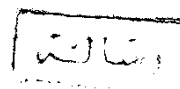


**STUDY OF INTERLEUKIN-2 RECEPTORS AND  
TUMOUR NECROSIS FACTOR SERUM LEVELS  
IN SCHISTOSOMIASIS AND THEIR ANALOGOUS  
CHANGES IN COLLAGEN DISEASES AND  
SCHISTOSOMAL ARTHROPATHY**

*Thesis*

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M.D. In Basic Medical Science  
(Parasitology)



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## **ABBREVIATIONS**

<b>ADCC</b>	: Antibody dependent cell mediated cytotoxicity
<b>BAF</b>	: B-cell activating factor
<b>BCDF</b>	: B-cell differentiation factor
<b>BCGF</b>	: B-cell growth factor
<b>CAA</b>	: Circulating anodally migrating antigen
<b>cAMP</b>	: Cyclic adenosine monophosphate
<b>CCA</b>	: Circulating cathodally migrating antigen
<b>CFU-e</b>	: Colony forming unit-erythroid
<b>CFU-GM</b>	: Colony forming unit-granulocyte/macrophage
<b>CSF</b>	: Colony stimulating factor
<b>ECF-L</b>	: Eosinophil chemotactic factor for lymphocytes
<b>ESP</b>	: Eosinophil stimulation promotor
<b>GASP</b>	: Gut associated proteoglycon
<b>IFN</b>	: Interferon
<b>IL</b>	: Interleukin
<b>LAP</b>	: Lymphocyte activating factor
<b>LGL</b>	: Large granular lymphocytes
<b>LPS</b>	: Lipopolysaccharides
<b>LT</b>	: Lymphotoxin
<b>MHC</b>	: Major histocompatibility complex
<b>MSA</b>	: Major serological antigen

<b>NK-cells</b>	: Natural killer cells
<b>PEG</b>	: Polyethylene glycol
<b>PHA</b>	: Phytohaemagglutinin
<b>SDIF</b>	: Schistosome derived inhibitory factor
<b>SEA</b>	: Soluble egg antigen
<b>SWAP</b>	: Soluble adult worm antigenic preparation
<b>T<sub>3</sub></b>	: Immature T-cells
<b>T<sub>4</sub></b>	: Helper/inducer T-cells
<b>T<sub>8</sub></b>	: Suppressor/cytotoxic T-cells
<b>TCGF</b>	: T-cell growth factor
<b>TGF<sub>β</sub></b>	: Transforming growth factor-beta
<b>TNF</b>	: Tumour necrosis factor

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# *Introduction*

## INTRODUCTION

Schistosomiasis is one of the serious endemic parasitic infections in Egypt due to its major complications and its affection of a large category of Egyptians (Khalil et al., 1977).

Chronic infections (like schistosomiasis) and autoimmune conditions (like collagen diseases) are settings in which the body's immune system is more or less continuously bathed in antigenic stimuli. The antigenic sources can be invading organisms (in schistosomiasis), or altered and normal cross-reacting self components (in collagen diseases). The result of these long-term interactions between a person's immune system and antigens can be immunopathogenic, resulting in severe morbidity and mortality (George and Colley, 1992).

Human intestinal and hepatic schistosomiasis is associated with characteristic alterations of T-cell mediated immune responses (Feldmeier et al., 1985). Among the most critical features of the immune response is the secretion of the T-lymphocyte derived growth factor interleukin-2 (IL-2) and the expression of receptors for this lymphokine (Smith, 1989). Since soluble interleukin-2 receptors (sIL-2R) could be detected in vivo, and the preliminary observations of certain diseases associated increase in serum levels of this molecule, the applicability and relevance of

sIL-2R determination in a broad spectrum of disease conditions (Nelson et al. 1987).

Another aspect about immune system in human intestinal and hepatosplenic schistosomiasis is the role of macrophages and the macrophage mediator tumour necrosis factor-alpha (TNF- $\alpha$ ) in granuloma formation which is the key pathogenic event in this disease (Payman et al., 1992 and Joseph and Boros, 1993). Beside the possible role of TNF- $\alpha$  in host defense against parasitic infection and tumour cell growth, it appears to have a more general role as an effector molecule in various inflammatory processes. The gene coding for human TNF- $\alpha$  has been cloned (Wang et al., 1985) and mapped to the short arm of chromosome six, and is in close linkage with genes of the major histocompatibility complex (MHC) (Speis et al., 1986). Since, some haplotypes of the MHC are associated with certain diseases, the possibility of abnormal TNF gene expression as a factor in various disease mechanisms has been proposed (Maury and Teppo, 1989).

The association between schistosomiasis and arthritis was reported by Mousa and El-Garem (1956) and the term "bilharzial arthropathy" was introduced by Bassiouni (1962). However, the term bilharzial or schistosomal arthropathy is still in need for further research to add more in its pathogenesis and more in its criteria for diagnosis and discrimination of it from other types of arthritis or arthropathies.