Tropical disease like amoebiasis continue to plague the world, resulting in considerable morbidity and mortality especially in the third world countries. Although statistical data on the prevalence and incidence of amoebiasis and the numbers of deaths it causes are inexact, most authorities today agree that approximately 480 million of world's human population is exposed to its ravages and that over 100 thousand are killed by the etiological agent of amoebiasis. These values are of interest because they raise several problems regarding the nature of the disease and the capacity of the host to mount defences against the parasite. The disease i.e. amoebiasis is caused by a protozoan Entamoeba histolytica which have over the years, undergone evolutionary adaptation to live a parasitic way of life. So well adapted have they become that they recognize the right hosts or cells to parasitize, yet at the same time they escape recognition and destruction by the host immune system. On the other hand, there is presumptive evidence of the existence of some form of immune surveillance. The mortality from extra-intestinal amoebiasis which is estimated to be from 2-10%, could suggest that most of the patients recover because of some host dependent mechanism that destroys the invading parasite. However, understanding these mechanism is essential not only to formulate a rational strategy for chemo- and immunoprophylaxis and - therapy but also to unravel the mystery of biological evolution in symbiosis and parasitism.

Pathogenicity is not a static character associated with an organism. It may vary according to environmental conditions, hosts physiology, age, sex and immunological
competence, along with the strain differences of both host and parasite. First part of this dissertation (Part I) deals with the induction of hepatic amoebiasis in Syrian golden hamsters using a local clinical isolate of *E. histolytica*. Main purpose of this work was to establish a model on which some basic immunological investigation could be carried out. Taking into account the well known feature of unstable virulence of the organism under different growth conditions, an optimum infection dose has been determined after subjecting *E. histolytica* under diverse growth conditions. Diagnosis is one of the most important aspects of the studies of parasitic diseases, not merely for distinguishing the inflicted individuals from healthy ones, but also in epidemiological studies where a reliable diagnostic method is necessary for evaluation of the result of any chemotherapy field work. Very few of the diagnostic tests are sufficiently specific and sensitive for detection of low levels of parasitaemia or for distinguishing between an active and nonactive form of the disease. Due to their high specificity and sensitivity, immunodiagnostic procedures are becoming more common than others.

Detection of anti-amoebic antibody in infected hamsters at different post inoculated days has been discussed in Part II of the thesis. Level of antibody titre and its relationship to the active and progressive liver lesion has also been dealt with.

In view of the fact that the circulating anti *E. histolytica* antibody persists in human subjects even after cure of the disease, mere demonstration of antibody suffers from the limitation of not to be able enough to discriminate the present from past infection. Thus the demonstration of
specific *E. histolytica* antigen in sera or tissues of infected individual should be the right choice for detecting current active amoebiasis.

Since *E. histolytica* antigen resides in the infected subject in a complexed form i.e. antigen antibody complex (immune complex), emphasis was taken to detect the immune complexes in sera of infected hamsters by classical detection method. Sequential demonstration of immune complex by Clq binding assay and its relationship with the disease process has been described in Part III of this dissertation. Part III also incorporates the data of the application of sensitive radio immunoassay to detect immune complexes containing specific *E. histolytica* antigen. The relationship of such circulating antigen with the corresponding antibody titre as well as with the lesion scores in liver has also been discussed. Preferential deposition of *E. histolytica* induced immune complexes in certain tissues and at certain stages of infection has been compiled in the Part III. The possible interpretation of these findings in relation to the disease process in human settings as well as the mechanisms behind the formation, clearance or deposition of immune complexes and the secondary effect of immune complex related diseases has been discussed under the heading 'Discussion'.

Although immunology as a science has evolved from the study of infectious diseases, research in specific host defence against protozoan infection has long been a relatively neglected area. More recently, however, this situation has begun to change, and the immunology of parasitism is becoming more attractive. Several facts account for this. In part it reflects growing appreciation of the actual need to fight those diseases which constitute the major health problem of
the world, affecting the physical and social well being of hundreds of millions of human beings. On the other hand, another important reason for this beginning shift of emphasis probably must be sought in the dramatic advances presently being made in many central areas of immunology itself. These advances are rapidly deepening our understanding of how the immune response is regulated and how it can be manipulated to become protective. Tissue damaging and protective immune effector mechanisms are being elucidated at the cellular and molecular level and new tools for immunodiagnosis of infectious agents are being developed at a rapid pace.

Besides limitation, the work cited in the present dissertation documented the sequelae of both antigen and antibody in an experimental animal model of amoebiasis. These data can be extrapolated in human situation since it is difficult to undertake similar studies in human being. A relevant objective in this field is to improve our possibilities to manipulate the immune response, for instance to achieve a stable acquired immunity against amoebic infection.

With the advent of new tools, it is not surprising that application of new immunological knowledge to the field of amoebiasis is seen by many as a challenge - a challenge which may be expected to render beneficial results both in the further advancement of immunology as a science and above all, in the fight against parasitic disease.

It is hoped that central themes or concepts will emerge from diversity of the finding reported from various systems, thereby providing useful leads for future investigations to understand the fundamental mechanism of amoebic parasitism in a modern perspective.