Definition of Problem
2. Definition of the problem

Diverse epidemiological patterns of TB are observed across culturally, socially and economically diverse human groups. In a TB endemic setting like India, the entire population is considered exposed to *M. tuberculosis* as well as non-tuberculous mycobacteria from the environment. Such exposure, coupled with the mandatory practice of BCG immunization, leads to a background or basal level of anti-mycobacterial immunity manifested in the form of tuberculin positivity and presence of anti-mycobacterial antibodies in body fluids. This situation is in contrast to a healthy population of non-endemic area which is unexposed to mycobacterial antigens. The differences in basal anti-mycobacterial immunity in various populations are perhaps best reflected in variable protection against tuberculosis provided by the BCG vaccine.

Initial observations on mycobacterium-macrophage interaction were made on studies based on murine macrophages or cell lines. When these studies were replicated using human macrophages, some of the observations could not be validated. There is very little information available on interaction of *M. tuberculosis* with human macrophages. Moreover, most human studies were done for any one of the aspects of macrophage-mycobacterium interaction and the observations have varied according to the donor population (disease endemic vs. non-endemic) and strains of the pathogen. Thus, it is difficult to determine the pattern of macrophage- *M. tuberculosis* interactions based on these studies.