SYNOPSIS

IDENTIFICATION AND CHARACTERIZATION OF ANTIGENS OF A FEW SELECTED SPECIES OF MYCOBACTERIA

INTRODUCTION

Mycobacteria, a class of Gram positive bacteria are known to be etiologic agents for many serious infectious diseases including tuberculosis. There are many species of Mycobacterium known, some of them have been directly implicated with human diseases for example - M. tuberculosis, causing tuberculosis in man. There are also a few atypical species of mycobacteria eg. M. intercellulare which do not normally cause disease in man but in immunocompromised host they could be devastating. Though M. tuberculosis was discovered a long time back, still very little is known regarding the host pathogen relationship and the factors that cause the disease in man. However, with invent of modern biological and immunological techniques, we have begun to understand some of the aspects of mycobacterial infection in man and other animal model systems.

Many attempts have been made in the past to obtain pure antigens and other molecules from different species of mycobacterium which could be implicated in virulence and in protection against tuberculosis. The methods that have been
used, ranged from conventional biochemical techniques to modern immunological methods. As no definite result has come till now, scientists are still searching for unique antigens that can serve as potential vaccines and diagnostic agents for tuberculosis and other mycobacterial diseases.

Keeping in view various studies which have been previously reported, we would like to make a molecular map of different antigens of a few selected species of mycobacteria with essentially three objectives in mind.

1. Identification of these antigens with respect to the specific assignment of their mobility upon one and 2D gel electrophoresis and Western blot analysis.

2. Analysis of cross reactive antigens by absorption experiment.

3. Localization of these antigens by cell fractionation.

METHODOLOGY

The different strains and species of mycobacteria isolated from patients will be grown in the laboratory. These antigens will be seperated by 2D and one dimensional gel electrophoresis. The pattern of 2D gel will be compared among them and attempt will be made to correlate with the nature of the disease and apparent virulence of the organism. Antigen after one and 2D separation, will be
transferred to the nitrocellulose paper and analysed by western blotting techniques. Analysis of the cross reactive antigens will be done by absorption experiments. Further more localization of these antigens will be done using cell fractionation methods.