Development of Improved Vaccines against Tuberculosis

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Tuberculosis (TB) is a contagious, severe, and chronic disease, which if untreated, can be fatal. Someone in the world is newly infected with TB with every tick of the clock, i.e. one person per second. One third (1.9 billion) of the world's population is infected with TB bacillus causing 8-10 million new cases of TB and about 3 million deaths each year. It is estimated by the World Health Organization (WHO) that in the next decade 300 million more people will be infected, 90 million will develop TB and 30 million people will die from it. TB currently kills more adults each year than AIDS, malaria and tropical diseases combined together. The burden of TB on human health is therefore enormous.

With the development of diagnostic (tuberculin) and prophylactic (bacille Calmette-Guérin, BCG) reagents several decades ago, it was thought that TB would be brought under control and possibly eradicated. However, events during the past decade have dramatically changed the nature and magnitude of the problem. The increase in TB incidence has been complicated by the emergence of HIV infection leading to the development of AIDS. The mycobacterial infections have proven to be amongst the most daunting medical and therapeutic challenges associated with the AIDS pandemic. WHO estimates that by the year 2000, HIV infection will annually produce at least 1.4 million active cases of TB that otherwise would not have occurred. The concern about the worldwide problem of TB is so great that WHO has declared TB a 'global emergency'. This is the first declaration of its kind in the history of WHO.

With all the changes in TB incidence and susceptible populations, the reagents, tuberculin and BCG, used for the diagnosis and prevention of TB, developed more than 50 years ago, remain unchanged. Unfortunately, the epidemiology of TB tells that such reagents have failed in specific diagnosis and prevention of TB and therefore there is a need to identify *Mycobacterium tuberculosis* antigens which could be useful in specific diagnosis and in developing protective vaccines.

An international conference sponsored by the Faculty of Medicine, Kuwait University on the Development of Improved Vaccines against Tuberculosis was held in Kuwait on March 20 and 21, 1996. Invited speakers from different countries, i.e. Denmark, Ethiopia, Kuwait, Norway, Portugal and United Kingdom, presented papers on their most recent research findings in the field of mycobacteriology with specific focus on the identification of mycobacterial antigens and epitopes important for diagnosis and vaccine development against TB. The Editorial Board of *Medical Principles and Practice* decided to publish these papers. The papers were submitted by the authors to the Editors and accepted after review by external

reviewers of international reputation. These papers are published in this issue of *Medical Principles and Practice* as original articles.

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