Bacteriology-2013

OMICS Group Conferences
Accelerating Scientific Discovery

International Congress on
Bacteriology & Infectious Diseases

November 20-22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, USA

T-helper 1, T-helper 2, pro-inflammatory and anti-inflammatory cytokines in tuberculosis

Abu Salim Mustafa

Kuwait University, Kuwait

Abstract

Cytokines are critical for protection and pathogenesis in tuberculosis. In general, the T-helper (Th)1 and pro-inflammatory cytokines are considered to have a role in protection, and the anti-inflammatory and Th2 cytokines in susceptibility/pathogenesis of tuberculosis. To better understand the role of cytokines in tuberculosis, we have studied in vitro secretion of the above cytokines from the peripheral blood mononuclear cells (PBMC) of tuberculosis patients (diabetic and non-diabetic) and healthy subjects. PBMC were incubated in vitro with complex mycobacterial antigens and pools of peptides corresponding to 11 *M. tuberculosis*-specific genomic regions of differences (RDs). The culture supernatants were assayed for the amount of cytokines released after 2 and/or 6 days of incubation. In general, the concentrations of antigen-induced Th2 cytokines were low/undetected and the pro-inflammatory cytokines were non-discriminatory. With respect to Th1 and anti-inflammatory cytokines, the antigens could be divided into three groups; the first with Th1-bias (culture filtrate of *M. tuberculosis*, RD1, RD5, RD7, RD9, RD10 and RD15), the second with anti-inflammatory-bias (whole bacilli and cell walls of *M. tuberculosis*, RD12 and RD13), and the third without any bias (*M. bovis* BCG, RD4, RD6 and RD11). However, among the peptide pools, RD1 peptides induced strongest Th1-bias, and the addition of RD12 and RD13 peptides to PBMC cultures inhibited the RD1-induced Th1-cytokines. The analyses of data for cytokines in diabetic and non-diabetic TB patients showed a shift towards Th2/anti-inflammatory cytokines in diabetic TB patients, which may explain, at least in part, a faster deterioration in their clinical conditions.

The work was supported by Kuwait University Research Sector grants MI02/12, MI01/10 and GM01/01 and KFAS grant 2002-1302-04.

Biography

Abu Salim Mustafa has completed PhD in 1979 from the All India Institute of Medical Sciences and postdoctoral studies from the National Institute of Cancer Research, Oslo, and Whitehead Institute for Biomedical Research, Cambridge. He is the director of Research Core Facility at the Health Sciences Centre, Kuwait University. He has published >150 papers in reputed journals with >5000 citations and h-index 38. He has served as an editorial board member for 8 journals, invited speaker in 63 conferences and chairman of 18 scientific sessions, member of 15 academic and professional societies, and successfully completed 51 funded research projects.