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Immune complex as vaccines against Tuberculosis

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Immune complex (IC) is formed as a result of specific reaction between antigen and its specific antibody. Following the formation of these antigen-antibody complexes a cascade of events like opsonization, complement activation, antigen presentation occurs inside the host system. For many decades, either antigen or antibodies are being used as vaccine candidates. In the event of acquiring this kind of artificial immunization, involvement of humoral immunity is essential for memory response. But before that, the administered antigen has to be captured by cell mediated immune surveillance and has to be presented by APCs and this is a long time process. This kind of delay is avoided when preformed IC is administered, which directly binds with APCs through antibody mediated binding. Also Fc region of immunoglobulin from IC acts as molecular adjuvants and thereby enhances immunization position of IC. In a study by Wen et al., (1999) excess Hepatitis B surface antigen (HBsAg) complexed with human anti-HBs immunoglobulin was used as a therapeutic vaccine to treat chronic hepatitis B patients. Promising results were obtained and the studies indicated that IC induced enhanced immune responses by increasing the uptake of HBsAg through the Fc receptors on the antigen-presenting cells and modulating the HBsAg processing and presentation. In our preliminary study using preformed IC of tuberculosis, we observed a protective response in animals when administered with ICs of antigen excess. This showed a significant response when compared to the animals injected with antibody excess or without any ICs. Hence IC in future could be considered as efficient vaccine candidates for Tuberculosis.

Biography

Shakila H has completed her PhD from The Tamil Nadu Dr. MGR Medical University, Chennai and Post-doctoral studies from Tuberculosis Research Centre (ICMR), Chennai. She is the Associate Professor in the Dept., of Molecular Microbiology, School of Biotechnology, Madurai Kamaraj University, Madurai, Tamil Nadu, India. She has published more than 20 papers in reputed journals and has been serving as Life Member in many societies and also Editorial Board Member of reputed journals till 2011. She has also reviewed many manuscripts in journals. Her area of research is immunology and immunopathology of infectious diseases like TB and HIV.

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