

International Conference on Clinical & Cellular Immunology

October 22-24, 2012 DoubleTree by Hilton Chicago-Northshore, USA

Vaccines in immunology: New insights and development

Nwachuku Chinonye Uloma
Ministry Of Health Enugu, Nigeria

Vaccines represent one of the greatest triumphs of modern medicine. Since the first mass vaccination against smallpox and its eventual eradication, many more vaccines have been developed based on advances in bacteriology and virology and the use of attenuated live or killed whole pathogens. Immunological discoveries have allowed the development of more refined anti-toxin and conjugate vaccines, while biotechnology provided the tools for rationally designed and genetically engineered vaccines.

Many challenges remain in developing safer and more effective vaccines against the more complex diseases such as rotavirus diarrhea, pneumococcal disease, tuberculosis and HIV-AIDS, and for the rapid protection against newly emerging pathogens or pathogen strains. These vaccines are likely to require the isolation of the "protective" antigenic molecules from the whole pathogen, as well as ways to deliver these to induce effective immune responses with minimal side effects. It has long been recognized that most antigens require the addition of an adjuvant that triggers the innate immune system and boosts an immune response.

Recent immunological breakthroughs have uncovered that the innate immune system has a much higher degree of complexity than previously thought and can be activated along a wide range of different pathways, depending on the engagement of different innate immune receptors. This in turn determines the type of immune response that will be generated against the vaccine antigens or pathogens. Harvesting the complexity and exquisite specificity of this innate immune system has inspired a new direction in vaccine research, towards the generation of novel adjuvant formulations, tailored to induce defined immune responses effective against specific pathogens. This paper seeks to highlight new insights and development in vaccine research and development against infectious diseases.

Biography

Nwachuku Chinonye Uloma has Masters Degree in Nursing at 30 years at University of Nigeria Nsukka. Currently the State coordinator of Safe Motherhood at Department of Public Health, Ministry of Health Enugu, Enugu State- Nigeria. She has presented papers in more than five International conferences with about 15 published articles/papers in reputable journal.

delegatesgov@gmail.com