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Vaccine adjuvants: Traditional vs Novel

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Most of the marketed vaccines contain an adjuvant which primarily serves as immune response enhancer. The traditionally used adjuvants consist of an aluminum salt (e.g. aluminum hydroxide, aluminum phosphate) and have a consistent safety record of almost a century of continuous use. The mechanism of action for the aluminum salts is not yet fully understood, but some of its efficacy has been attributed to depot release of bound antigen. The aluminum adjuvants are known to elicit predominantly humoral (Th2) immune response. Recent advancements in understanding of innate and adaptive immune system led to discovery of novel adjuvants that are capable of eliciting Th1, Th2 or a balanced Th1/Th2 response. Additionally, the novel adjuvants may lead to better memory of the response. Some of the novel adjuvants include Toll Like Receptor (TLR) agonists, saponin / saponin containing particles, oil in water emulsions, liposomes and cytokines. Few of the novel adjuvants have been a part of marketed vaccines (e.g. ASO4 in Cervarix, MF59 in Fluad). The number of novel adjuvants in clinical trials is rapidly growing (e.g. malaria trial with ASO1). This presentation will give an overview of the characteristics, effects and usages of the traditional and novel adjuvants.

Biography

Maya Salnikova currently a Senior Research Scientist at Merck&Co., Inc. Merck is a world leader in human vaccines for the past decades. Dr. Salnikova is an expert in vaccine formulations and characterization. She has developed complex vaccines with different modalities. Dr. Salnikova has contributed in development of vaccine formulations through her in-depth expertise in both traditional aluminum adjuvants and novel adjuvants. Before joining Merck &Co., Inc., she was involved in characterization and development of vaccines at the Macromolecule and Vaccine Stabilization Laboratory at the University of Kansas with Professor Middaugh. She earned her Ph.D. degree at the University of Kansas and has authored more than a dozen peer-reviewed scientific publications

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