

Vaccine adjuvants: Striking the right balance

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Abstract

The role of an adjuvant is to improve the immunogenicity of antigens, they are often included in vaccines to achieve a range of more specific effects. Majority of vaccines are comprised of highly purified recombinant proteins, or peptides, representing subunits of pathogens. These vaccines lack most of the features of the original pathogen and are often poorly immunogenic. Therefore, need for vaccine adjuvants is greater now than ever before. Preferred strategy for the development of new-generation vaccines is to add highly purified synthetic adjuvants, which will activate only elements of immune response required for protection, and will not trigger a more generalized activation of the immune response. Novel adjuvants are therefore targeted to receptors expressed on antigen-presenting cells like dendritic cells to activate the innate immune system. There is an interest in use of synthetic analogues of these agents due to low cost and can be obtained in highly purified forms like traditional small-molecular-weight drugs ,called as Small Molecule Immune Potentiators (SMIPs). The use of SMIPs as

adjuvants allows exploitation of traditional pharmaceutical synthetic approaches, including ability to manipulate compound structures to control performance. Due to advantages, more diverse families of SMIPs will be discovered, to allow better manipulation and control of the immune response.. Hence, adjuvant formulations will increasingly comprise one or more potent immune potentiators, which will be designed to induce the specific kind of immune response required, formulated into delivery systems, which will be designed to maximize potency and minimize potential for adverse events, to ensure maximal safety.

Biography

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