

FORMULATION CONSIDERATIONS FOR THE DEVELOPMENT OF ADJUVANTED VACCINES

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Adjuvants constitute an important class of products for the development of modern vaccines, especially for vaccines based on highly purified protein antigens. However, there are only a few adjuvants that are used in licensed human vaccines, with aluminum salts (AlOOH and AlPO₄) and squalene emulsions (AS03, MF59) being the most widely injected adjuvants in humans.

While simple aluminum salts and emulsion adjuvants are very good at increasing antibody and Th-2 responses, they often lack the ability to induce strong Th-1 type cellular responses. One approach to increase the capacity of these adjuvants to induce Th-1 responses is to combine them with a small molecular weight immunopotentiator, such as a Toll-like receptor (TLR) agonist. We and others found that formulation plays an important role when developing such adjuvant combinations. With the example of a small molecule TLR-4 agonist, E6020, combined respectively to aluminum salt and to a squalene emulsion, this presentation will highlight some key formulation parameters that control the safety, potency and stability of these adjuvant combinations.

References:

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