FORMULATION CONSIDERATIONS FOR THE DEVELOPMENT OF ADJUVANTED VACCINES

Jean Haensler, Sanofi Pasteur Research Dpt, Marcy l’Etoile, France
Jean.Haensler@sanofi.com

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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:
