AlumVax Phosphate 2%
Vaccine Adjuvant

Product information

AlumVax Phosphate is wet gel (colloidal) of aluminum phosphate 2%, provided as a ready-to-use suspension. It is sterilized and aseptically filled. AlumVax phosphate is an amorphous aluminum hydroxyphosphate which is negatively charged at physiological pH (pI=5–7), suitable for adsorption of positively charged or neutral, alkaline proteins.

AlumVax Phosphate is available in two quantities: #AP0050: 50 mL and #AP0250: 250 mL.

Storage and stability

Shipping and storage: Room Temperature. Product is stable for 6 months. DO NOT FREEZE (ice crystal may impair the product).

Chemical properties

Formulation: AlPO4, Aluminium phosphate gel
Appearance: White gelatinous precipitate

Description

Aluminum salts are the most common adjuvant used in approved prophylactic vaccines because of their excellent safety profile and ability to enhance protective humoral immune response. Since more than 80 years, it has been observed that aluminium compounds act by a depot effect and also by direct activation of the immune cells. Adsorption or entrapment of antigens in aggregates through hydrophobic and electrostatic interactions favors a high local antigen concentration and improved uptake by antigen presenting cells (APC).

Alum Phosphate stimulates Th2 response through the release of Th2-associated cytokines (IL4, IL-5, IL-13…) and Th2-associated antibodies (IgG1 & IgE). It increases Ag-specific CD4+ T Cell proliferation and promotes NALP3 inflammasome activation and caspase 1-mediated release of IL-1 and IL-18.

NOTE: Alum is frequently used as an alternative to Freund's adjuvants, as it is less hazardous and less likely to cause tissue necrosis at the injection site.

Results

Results below present the effect of Aluminum phosphate adjuvant on immune system response:

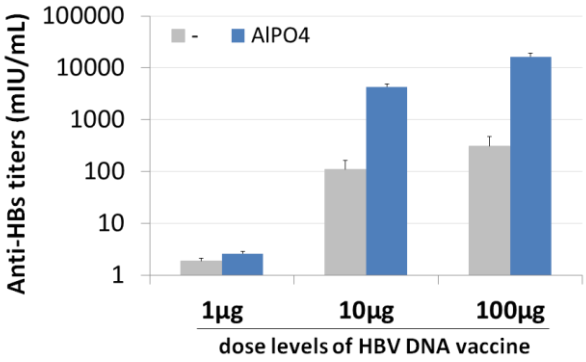

Figure 1. Adjuvant effect of AlPO4 for HBV DNA vaccines. Aluminum phosphate had a powerful adjuvant effect for Hepatis B (HBV) DNA vaccines in mice *(adapted from Wang S. et al., Vaccines. 2000; 18:1227-35)*.

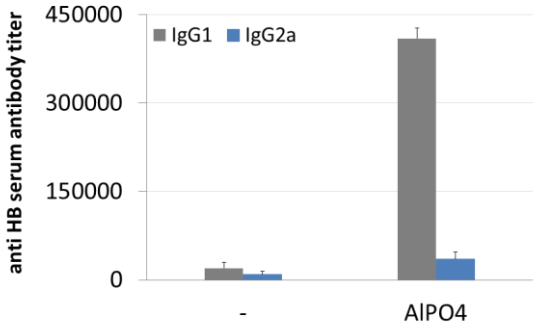

Figure 2. Efficient delivery of protein antigen. BALB/C mice were vaccinated i.m. with recombinant Hepatitis B surface antigen with or without AlPO4. 4 weeks sera were tested for anti-HBsAg antibodies by ELISA *(adapted from Kwissa M. et al., J Mol Med. 2003; 81:502-510.*

Method/protocol

Recommendations before starting:

The inoculum should be free of extraneous microbial contamination; filtration of the antigen before mixing with the adjuvant is recommended.

Preparation of Aluminum Phosphate-immunogens mix is easier than other adjuvants as it does not require laborious emulsification.

1. Ensure a complete re-suspension of AlumVax Phosphate adjuvant by vigorous shaking of the vial before use.
2. Dilute antigen mixture in saline buffer or phosphate buffer for a final immunogen concentration of 10-100 µg/100 µL.

3. Mix AlumVax phosphate adjuvant with an equal volume of antigen solution for a 1:1 ratio:
   a. Add AlumVax phosphate dropwise with constant mixing to the immunogen solution.
   b. Pipet up and down several times to ensure correct absorption of antigen by alum adjuvant and incubate 5 to 10 minutes.

NOTE: Ratio can be optimized from 1:1 (100µL adjuvant per 100µL antigen) to 1:9 (100µL adjuvant per 900µL antigen)

4. Inject into the animal according to the table below; the volume depends on the site of injection. Typical routes of administration include subcutaneous (SC), intramuscular (IM), intradermal (ID) or intraperitoneal (IP).

Species	Max vol/site	Primary injection	Subsequent Injection(s)
Mice, hamsters	0.1 mL	SC	SC
Mice, hamsters	0.05 mL	IM$^{\Delta}$	IM$^{\Delta}$
Mice	0.5 mL	IP$^{\times}$	SC, IM$^{\Delta}$
Guinea pigs, rats	0.2 mL	SC, IM$^{\Delta}$	SC, IM$^{\Delta}$
Rabbits	0.25 mL	SC, IM	SC, IM
Rabbits	0.025 mL	ID	SC, IM
Sheep, goats, donkeys, pigs Chickens	0.5 mL	SC, IM	

Δ Not recommended in general, in particular not for viscous adjuvants
$\times$ Not recommended for pAb production

Table 1: Maximum volumes for injection of immunogen/adjuvant mixtures per site of injection for different animal species *(Adapted from Leenars MPPA, Hendriksen CFM et al., 1999)*

Purchaser Notification

Limited License

The purchase of the AlumVax phosphate Vaccine Adjuvant grants the purchaser a non-transferable, non-exclusive license to use the included components. This reagent is intended for in-house research only by the buyer. Such use is limited to the transfection of nucleic acids as described in the product manual. In addition, research only use means that this formulation is excluded, without limitation, from resale, repackaging, or use for the making or selling of any commercial product or service without the written approval of OZ Biosciences.
Separate licenses are available from OZ Biosciences for the express purpose of non-research use or applications of the AlumVax phosphate Vaccine Adjuvant. To inquire about such licenses, or to obtain authorization to transfer or use the enclosed material, contact the Director of Business Development at OZ Biosciences.

Buyers may end this License at any time by returning all AlumVax phosphate Vaccine Adjuvant material and documentation to OZ Biosciences, or by destroying AlumVax phosphate Vaccine Adjuvant components. Purchasers are advised to contact OZ Biosciences with the notification that a AlumVax phosphate Vaccine Adjuvant is being returned in order to be reimbursed and/or to definitely terminate a license for internal research use only granted through the purchase of the kit(s).
This document covers entirely the terms of the AlumVax phosphate Vaccine Adjuvant research only license, and does not grant any other express or implied license. The laws of the French Government shall govern the interpretation and enforcement of the terms of this License.

Product Use Limitations

The AlumVax phosphate Vaccine Adjuvant is developed, designed, intended, and sold for research use only. It is not to be used for human diagnostic or included/used in any drug intended for human use. All care and attention should be exercised in the use of the component by following proper research laboratory practices

OZ Biosciences SAS

163 avenue de Luminy
Case 922, zone entreprise
13288 Marseille cedex 09 - FRANCE
Ph: +33 (0) 486 948 516
Fax: +33 (0) 463 740 015
contact@ozbiosciences.com
order@ozbiosciences.com

OZ Biosciences INC

7975 Dunbrook Road
Suite B
San Diego CA 92126- USA
Ph: + 1-858-246-7840
Fax: + 1-855-631-0626
contactUSA@ozbiosciences.com
orderUSA@ozbiosciences.com