

AlumaGel® Adjuvant 2%

equivalent to Invivogen vac-alu-50

Basic information

Catalog:	BGT-CND-100
Size:	10mL, 50mL, 250mL
Formulation:	Al(OH) ₃ , Aluminum hydroxide gel
CAS Number:	21645-51-2
Appearance:	White gelatinous precipitate
Aluminium content:	9.0–11.0mg/mL; pH: ~6.5
Shipping and Storage conditions:	Room Temperature
Shelf life:	1 year from the date of purchase

Product Introduction

AlumaGel® Adjuvant is wet gel (colloidal) of aluminum hydroxide 2%, provided as a ready-to-use suspension. It is sterilized and aseptically filled. AlumaGel® Adjuvant is a crystalline aluminum oxyhydroxide that is positively charged at physiological pH (pI=11), suitable for adsorption of negatively charged, acidic proteins (such as albumin).

AlumaGel® Adjuvant is the most common adjuvant used in approved prophylactic vaccines because of its excellent safety profile and ability to enhance protective humoral immune response. Since more than 80 years, it has been observed that aluminum compounds act by a depot effect and 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).

AlumaGel® Adjuvant 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. For Research Use Only. Not for use in humans. Not for use in diagnostic or therapeutic purposes.

Protocol

1. 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 AlumaGel® Adjuvant-immunogens mix is easier than other adjuvants as it does not require laborious emulsification. Table 1. DNA standard curve when uses 10 × 10mm cuvette

2. Ensure complete re-suspension of AlumaGel® Adjuvant by vigorous shaking of the vial before use.

3. Dilute antigen mixture in saline buffer or phosphate buffer for a final immunogen concentration of 10-100 µg/100 µL.

4. Mix AlumaGel® Adjuvant with an equal volume of antigen solution for a 1:1 ratio:

a. Add AlumaGel® Adjuvant 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 5-10 min.

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

5. Inject into the animal according to table 1 below; the volume depends on the site of injection.

Typical routes of administration include subcutaneous (SC), intramuscular (IM), intradermal (ID) or intraperitoneal (IP).

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., 19).

Species	Max vol. / Site	Primary Injection	Subsequent Injection(s)
Mice, hamsters	0.1mL	SC	SC
Mice, hamsters	0.05mL	IM ^Δ	IM ^Δ
Mice	0.5mL	IP [×]	SC, IM ^Δ
Guinea pigs, rats	0.2mL	SC, IM ^Δ	SC, IM ^Δ
Rabbits	0.25mL	SC, IM	SC, IM
Rabbits	0.025mL	ID	SC, IM
Sheep, goats, donkeys, pigs, chickens	0.5mL	SC, IM	

Δ Not recommended in general, particularly for viscous adjuvants.

× Not recommended for pAb production.