

For vaccination of very sensitive larger animals

An Adjuvant for commercial use, highly concentrated for best effect with small injection volumes.
 Powerful potentiator of cellular and humoral immune response with long term protecting effect.
 Particularly mild and simple to handle, just mix with antigen and inject.
 All components are non-toxic and fully biocompatible.

Suggestion for Use

Storage:	4-8°C. Ready-made mixture should be stored frozen. Bring to room temperature prior to use.
Withdrawal:	Use a sterile plastic syringe, mix with antigen solution and shake.
Dilution Rate:	Standard rate is 1:1 with antigen solution (column 3 table), but other ratios are no problem as long as the recommended volume of adjuvant is used and the maximum injection volume at each site not exceeded.
Diluent:	Use water as the diluent. If buffer is necessary, use HEPES, MOPS or glycine. Avoid polyvalent ions such as phosphate or citrate which can provoke coagulation of the positively charged particles. A pH between 5 and 6 has often proved to be more favourable than strictly neutral.
Route of application:	Subcutaneous.
No. of injection sites:	For optimum effect, more sites are always better (column 5)
Maximum injection volume per site:	Recommendations are given by various Animal Protection Councils all over the world. [c/f. Lenaars, M. et al (1999) ATLA 27, 79-102. Also: Nicklas, W., Cußler, K., & Hartinger, J., T (1998) TVT, Tierschutzaspekte bei der Immunisierung von Versuchstieren]. For FCA the maximal s/c injection volumina established are 1/10 of the s/c volume in column 4.
Stability of Antigen-Adjuvant mix:	No restriction, except antigen solution contains polyanionic compounds which could lead to precipitate.

Table of Doses and Application

1	2	3	4	5	6
Animal Species weight	Adjuvant dose	Injection volume / total	Injection volume / site	Number of injection sites	Boosting days
Rabbit 3 kg	1 ml	2 ml	500 µl	4	0 - 14 - 28 - 42
Pig 50 kg	4 ml	8 ml	1.5 ml	5	0 - 28 - 42
Goat/Sheep 50 kg	5 ml	10 ml	2 ml	5	0 - 28 - 42
Lama 100 kg	2 ml	4 ml	1 ml	2	0 - 14 - 28 - 42
Horse/Camel 500 kg	4 ml	8 ml	6 ml	2	0 - 28
Cattle 700 kg	8 ml	16 ml	6	4	0 - 28

Compatibility

In the host organism the colloidal particles are rapidly rinsed away to the lymphatic system where they perform their action and cannot cause granulomas. All components are proven to be orally and parenterally nontoxic. Generally subcutaneous application works just as well as i/m or i/p and is definitely better tolerated. Chicken especially were observed to stop laying eggs after i/m injections into the breast muscle. GMDP has been found to be pyrogenic in doses over 10 µg/kg body mass.

Active Ingredients

The effectivity of Gerbu Adjuvant is based on the synergistic action of the muramyl glycopeptides and solid ultrafiltrable particles of slowly biodegradable lipids added in order to impart the positive electric charges beneficial for optimal efficiency. Equally important are the immunopotentiating, biocompatible emulsifiers and the carefully adjusted synergistic and stabilizing medium which surrounds the nanoparticles.

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