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Canine Distemper Vaccine, Living

General Notices

(Canine Distemper Vaccine (Live), Ph. Eur. monograph 0448)

Ph Eur

1 DEFINITION

Canine distemper vaccine (live) is a preparation of a suitable strain of distemper virus. This monograph applies to vaccines intended for the active immunisation of dogs against canine distemper.

2 PRODUCTION

2-1 PREPARATION OF THE VACCINE

The vaccine virus is grown in embryonated hens' eggs or in cell cultures.

2-2 SUBSTRATE FOR VIRUS PROPAGATION

2-2-1 Embryonated hens' eggs

If the vaccine virus is grown in embryonated hens' eggs, they are obtained from flocks free from specified pathogens (SPF) (*5.2.2*).

2-2-2 Cell cultures

If the vaccine virus is grown in cell cultures, they comply with the requirements for cell cultures for the production of vaccines for veterinary use (*5.2.4*).

2-3 CHOICE OF VACCINE VIRUS

The vaccine virus is shown to be satisfactory with respect to safety (*5.2.6*) and efficacy (*5.2.7*) for the dogs for which it is intended.

The following tests for safety (section 2-3-1), increase in virulence (section 2-3-2) and immunogenicity (section 2-3-3) may be used during the demonstration of safety and efficacy.

2-3-1 Safety

Carry out the test for each route and method of administration to be recommended for vaccination. Use vaccine virus at the least attenuated passage level that will be present in a batch of the vaccine.

For each test, use not fewer than 5 dogs of the minimum age to be recommended for vaccination and that do not have antibodies against canine distemper virus. Administer to each dog a quantity of the vaccine virus equivalent to not less than 10 times the maximum virus titre likely to be contained in 1 dose of the vaccine. Observe the dogs at least daily for 42 days.

The vaccine virus complies with the test if no dog shows abnormal local or systemic reactions, signs of disease or dies from causes attributable to the vaccine virus.

2-3-2 Increase in virulence

Carry out the test according to general chapter *5.2.6* using dogs 5-7 weeks old, that do not have antibodies against canine distemper virus. If the properties of the vaccine virus allow sequential passage through 5 groups via natural spreading, this method may be used, otherwise passage as described below is carried out.

Administer to each dog of the 1st group by a route to be recommended a quantity of the vaccine virus that will allow recovery of virus for the passages described below. Administer the virus by the route to be recommended for vaccination most likely to lead to reversion to virulence. After 5-10 days, prepare a suspension from the nasal mucosa, tonsils, thymus, spleen and the lungs and their local lymph nodes of each dog and pool the samples. Administer 1 mL of the pooled samples by the intranasal route to each dog of the next group. Carry out this passage operation not fewer than 4 times; verify the presence of the virus at each passage. If the virus is not found at a passage level, repeat the passage by administration to a group of 10 dogs.

If the 5th group of dogs shows no evidence of an increase in virulence indicative of reversion during the observation period, further testing is not required. Otherwise, carry out an additional safety test and compare the clinical signs and any relevant parameters in a group of at least 8 dogs receiving the material used for the 1st passage and another similar group receiving the virus at the final passage level.

The vaccine virus complies with the test if no indication of increased virulence of the virus recovered for the final passage compared with the material used for the 1st passage is observed. If virus is not recovered after an initial passage in 2 dogs and a subsequent repeat passage in 10 dogs, the vaccine virus also complies with the test.

2-3-3 Immunogenicity

A test is carried out for each route and method of administration to be recommended for vaccination using in each case dogs 8-16 weeks old. The quantity of vaccine virus to be administered to each dog is not greater than the minimum virus titre to be stated on the label and the virus is at the most attenuated passage level that will be present in a batch of vaccine.

Use for the test not fewer than 7 dogs that do not have antibodies against canine distemper virus. Vaccinate not fewer than 5 dogs according to the schedule to be recommended. Maintain not fewer than 2 dogs as controls. Challenge each dog after 20-22 days by the intravenous route with a sufficient quantity of a suspension of virulent canine distemper virus. Observe the dogs at least daily for 21 days after challenge. Dogs displaying typical signs of serious infection with canine distemper virus are euthanised to avoid unnecessary suffering.

The test is not valid if during the observation period after challenge, fewer than 100 per cent of the control dogs die or show notable signs of canine distemper.

The vaccine virus complies with the test if during the observation period after challenge, all the vaccinated dogs survive and show no signs of disease.

3 BATCH TESTS

3-1 Identification

The vaccine is identified using a suitable method. For example, when mixed with a monospecific distemper antiserum against canine distemper virus, it is no longer able to provoke cytopathic effects in susceptible cell cultures into which it is inoculated.

3-2 Bacteria and fungi

The vaccine, including where applicable the diluent supplied for reconstitution, complies with the test for sterility prescribed in the general monograph *Vaccines for veterinary use (0062)*.

3-3 Mycoplasmas (*2.6.7*)

The vaccine complies with the test for mycoplasmas.

3-4 Extraneous agents (*5.2.5*)

The vaccine is free from extraneous agents.

3-5 Virus titre

Titrate the vaccine virus in suitable cell cultures. The vaccine complies with the test if one dose contains not less than the minimum virus titre stated on the label.

3-6 Potency

The vaccine complies with the requirements of the test prescribed under Immunogenicity (section 2-3-3) when administered by a recommended route and method. It is not necessary to carry out the potency test for each batch of the vaccine if it has been carried out on a representative batch using a vaccinating dose containing not more than the minimum virus titre stated on the label.
