DRAFT REVISED MONOGRAPH FOR COMMENTS

This draft revised monograph contain text for inclusion in the Indian Pharmacopoeia (IP). The content of this draft document is not final, and the text may be subject to further revisions prior to publication in the IP. This draft does not necessarily represent the decisions or the stated policy of the IP or Indian Pharmacopoeia Commission (IPC).

Manufacturers, regulatory authorities, health authorities, researchers, and other stakeholders are invited to provide their feedback and comments on this draft proposal. Comments received after the last date will not be considered by the IPC before finalizing the monograph.

Please send any comments you may have on this draft document to lab.ipc@gov.in/ biologics-ipc@gov.in **before the last date for comments.**

Document History and Schedule for the Adoption Process

Description	**Details**
Document version	1.0
First Draft published on IPC website for public comments	1st November 2024
Last Date for Comments	15th December 2024
Monograph Revision proposed for Inclusion in	IP 2026
Tentative effective date of proposed amendment	January, 2026
Draft revision published on IPC website for public comments	NA
Further follow-up action as required.	

Reo Virus Vaccine, Live

Reo Virus Vaccine, Live is a preparation of a suitable strain(s) of Reo virus known to be safe and immunogenic. This monograph applies to vaccines intended for administration to chickens for protection against malabsorption Syndrome and /or proventriculitis and /or Tenosynovitis in birds.

Production

Preparation of the vaccine

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

Substrate for virus propagation

Embryonated hens' eggs.

If the vaccine virus is grown in embryonated hens' eggs, they are to be obtained from flocks free from specified pathogens (SPF) (2.7.7).

Cell cultures.

If the vaccine virus is grown in cell cultures, they comply with the requirements for cell cultures for production of veterinary vaccines (2.7.13). If continuous cell line is used for the vaccine manufacturing, the cell line should be from seed lot system. If primary chicken cells are used for manufacturing, the Embryo or chicken should be SPF flocks (2.7.7).

Seed lots

The master seed lot complies with the tests for extraneous agents (2.7.10).

Identification. When mixed with monospecific Reo virus antiserum, the vaccine no longer induces cytopathic effect in susceptible cell culture derived from SPF eggs (2.7.7) or carry out immunostaining test in cell culture derived from SPF eggs (2.7.7) to identify the vaccine virus**.**

Choice of vaccine virus. A reference strain obtained from an authentic source shall be used for the vaccine production. The master seed which has been established as pure, safe and immunogenic (2.7.12) shall be used for the vaccine production.

Safety. Inject 10 times the dose by the route stated on the label into each of 10 SPF chickens (2.7.7, Table 3) or healthy susceptible chickens of recommended age. Observe the birds for 14 days. Not more than one of the vaccinated chickens shows symptoms of or dies of reo virus infection. If during the period of observation more than 2 of the vaccinated chickens die from causes not attributable to the vaccine, repeat the test

Test for Reversion to Virulence. Carry out the test according to general chapter using one-day-old chickens from an SPF flock (*2.7.7*). 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 chicken of the 1st group (n =10) by a suitable route a quantity of the vaccine virus that will allow recovery of virus for the passages described below. Euthanize the chickens at the moment when the virus concentration in the most suitable material (for example, tendons, tendon sheaths and liquid exudates from the hock joints, spleen) is sufficient. Prepare a suspension from this material from each chicken and pool these samples. Administer 0.1 ml of the pooled samples by the route of administration most likely to lead to increase in virulence to each chicken 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 chickens.

If the 5th group of chickens 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 10 chickens 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 an increase in virulence of the virus at the final passage level compared with the material used for the 1st passage is observed. If the virus is not recovered after an initial passage in 5 chickens and a subsequent repeat passage in 10 chickens, the vaccine virus also complies with the test.

Immunogenicity

Reo susceptible healthy chickens of same age and from the same source shall be used as test birds. Vaccine intended for use in very young chickens shall be administered to chickens of the youngest age for which vaccine is recommended. Vaccines intended for use in older chickens shall be administered to 4 weeks or older birds. Twenty SPF chickens (2.7.7, Table 3) or healthy susceptible chickens vaccinates shall be used for each method of administration. One dose will be injected to vaccinates. Ten chickens shall be held as unvaccinated controls.

Immunogenicity test of each age group shall be conducted separately. Twenty one days post vaccination each vaccinate and control shall be challenged by injecting virulent virus into one foot pad. The vaccinates and controls shall be observed for 14 days post challenge. If at least 90 per cent of the controls do not develop swelling and discolouration in the phalangeal joint area of injected foot pad typical of infection of Reo virus, the test is inconclusive and may be repeated. If at least 18 out of 20 vaccinates do not remain free of these signs, disregarding transient swelling which subsides within 5 days post challenge, the serial is unsatisfactory.

The serial is satisfactory when it gives 90 per cent protection to vaccinated group and 90 per cent controls develop positive Reo virus lesions on challenge.

Batch test

Identification

Vaccine complies with the requirements mentioned under production. Alternatively suitable validated immunochemical/ molecular biology methods can be used with the approval of competent authority.

Bacterial and fungal contamination (2.2.11). The vaccine, including where applicable the diluent supplied for reconstitution, complies with the test for sterility.

Vaccines intended for administration by injection, scarification or wing web piercing comply with the test for sterility (2.2.11).

Frozen or freeze-dried vaccines produced in embryonated eggs and not intended for administration by injection, scarification or wing web piercing either comply with the test for sterility (2.2.11) or with the following test: carry out a quantitative test for bacterial and fungal contamination; carry out identification tests for micro-organisms detected in the vaccine; the vaccine does not contain pathogenic micro-organisms and contains not more than 1 non-pathogenic micro-organism per dose.

Mycoplasmas (2.7.9). Complies with the test for mycoplasmas.

Water (2.3.43). Not more than 3.0 per cent

Extraneous agents (2.7.11). The vaccine is free from extraneous agents.

Safety. The vaccine complies with the test for safety as mentioned under Production.

Note: General Requirements shall be referred regarding omission of the batch safety test.

Virus titre. Titrate the vaccine in cell cultures derived from SPF embryos or in SPF eggs (2.7.7). One dose of the vaccine contains not less than 10^3 $TCID_{50}$ / EID_{50} per dose.

Potency. The vaccine complies with the requirements of the test prescribed under Immunogenicity 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.

Labelling

The label must state that (1) the vaccine is for veterinary use only; (2) the recommended routes of administration; (3) the instructions for use, such as –reconstituted with the diluent supplied for reconstitution where applicable"; (4) the animal species for which the vaccine is intended; (5) storage temperatures; (6) Batch Number, Manufacturing date and expiry date; (7) Total volume or number of doses; (8) Minimum virus titre per dose of vaccine; (9) Dose of vaccine