Development of Beak and Feather Disease Virus (BFDV) Vaccine Using Silkworm Baculovirus System

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Backgroud

Beak and feather disease virus (BFDV), a highly contagious avian circovirus with global prevalence, causes severe feather and beak deformities, and immunosuppression in both wild and captive parrots. Current interventions are ineffetive against this frequently fatal disease. The silkworm baculovirus expression system offers a promising commercial vaccine production platform due to its high protein stability and preserved antigenicity.

AIM : To evaluate the long-term protective efficacy of a silkworm-derived BFDV vaccine in parrots.

Material and Method



Result 1: Serum Antibody Response

A: Lovebirds' Dose-Dependent anti-BFDV Antibody Dynamics



Result 3: Histopathological Features

A: Lovebirds' Tissue Inflammatory in BFDV PCR-Positive Organs

BFDV PCR detection in tissues: 17.4% [vaccinated] vs. 40% [control] PCR-positive at 27 wpc.



 Antibody titers persisted in proportion to immunization dose. •Post-challenge, vaccinated groups rapidly achieved high antibody levels.

B: Lovebirds' Peak anti-BFDV Antibody Titers by Dosage



Maximum antibody levels dierctly correlated with administered vaccine dose.

Result 2: Feather Viral Loads Variables

A: Lovebirds' Feather Temporal BFDV Shedding Patterns

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Inflammatory cell infiltration was observed in BFDV PCR-positive tissues.

B: Lovebirds' Immune Activation in Lymphoid Organs



•Apoptotic bodies with 'starry sky' morphology characterized the lymphoid organs.

Conclusion and Future Directions

Conclusion:

The BFDV vaccine produced by the silkworm baculovirus system elicited



• The duration of detectable feather viral DNA was reduced in high-dose groups.

durable and dose-dependent antibody responses in lovebirds. This facilitated rapid immune activation and viral clearance upon challenge, highlighting its protective efficacy.

Future Directions:



AIM: Development of an Oral BFDV vaccine

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