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**Construction and immunogenicity evaluation of ROP27 DNA vaccine against Eimeria tenella**

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**Abstract:**

**Background/Objective:** Chicken coccidiosis is a type of intracellular parasitic protozoa that is widespread around the world. The incidence rate of this disease in intensive farms is 20%-80%, and the mortality rate is 60%-80%. The economic loss caused by chicken coccidiosis infection in the world is about 10.4 billion pounds every year.

**Methods:** In order to explore the immune protection of Eimeria tenella（E.tenella） DNA vaccine pVAX-ROP27, EtROP27 was cloned into eukaryotic vector pVAX1.0 to construct pVAX-ROP27 DNA vaccine, and its expression in chickens was detected by RT-PCR and Western Blot.Subsequently, animal experiments were conducted to evaluate the immunoprotective effect of the pVAX-R0P27 with different immunizing doses(12.5μg、25μg、50μg、100μg and 200μg).

**Results:** The results showed that the DNA vaccine pVAX-ROP27 was successfully constructed, and the EtROP27 antigen gene could be well expressed in vivo. The animal experiment results showed that the average weight gain, relative weight gain rate, cecal lesion score reduction rate and oocyst reduction rate of chickens in each dose of pVAX-ROP27 group were significantly improved (P < 0.05), and the average cecal lesion score and oocystser per gram（OPG） were significantly reduced (P < 0.05)， with the most obvious effect in the 100 μg pVAX-ROP27 dose group, the Anticoccidialindex (ACI) was up to 179.80.The results of ELISA showed that the levels of IL-2, IFN-γ, IL-6, IgG and IgY increased significantly (P < 0.05) and IL-4, IL-10 were no significantly differences with the increase of immunization times.

**Conclusion:** These results indicate that pVAX-ROP27, a DNA vaccine against E.tenella, provides excellent immune protection and is an effective vaccine candidate against chicken coccidiosis, providing a new option for the prevention and control of chicken coccidiosis.

**Keywords:** Eimeria tenella, immunoprotective; Et ROP27 DNA Vaccine