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杆状病毒-昆虫表达系统(IBEVS)表达的动物病毒样颗粒及疫苗研究进展

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摘要: 杆状病毒-昆虫表达系统(IBEVS)是一种高效的外源蛋白表达平台,具有可以容纳较大的外源基因片段、蛋白质表达量较高、支持蛋白质翻译后修饰、操作简便且安全性较高等优势,已被广泛用于兽用疫苗生产。病毒样颗粒(VLP)是一种由病毒蛋白自组装形成的纳米颗粒,由于缺乏病毒遗传物质,其安全性较高。VLP表面抗原排列高度有序,可有效诱导免疫反应,是一种新型的亚单位疫苗。本文综述了IBEVS在动物VLP疫苗中的应用现状,分析了当前IBEVS存在的问题及其解决策略,为动物VLP疫苗的进一步开发提供参考。

关键词: 病毒样颗粒; 杆状病毒-昆虫表达系统(IBEVS); 动物病毒样颗粒疫苗

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Research progress on animal virus-like particles expressed by insect cell-baculovirus expression vector system (IBEVS) and vaccines

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Abstract: The insect cell-baculovirus expression vector system (IBEVS) is a highly efficient expression platform for exogenous proteins. It has several advantages, including the capability to accommodate relatively large exogenous gene fragments, high levels of protein expression, support for post-translational modifications of proteins, ease of operation, and high safety. Due to these advantages, it has been widely used in the production of veterinary vaccines. Virus-like particles (VLPs) are nanoscale particles that are self-assembled from viral proteins. Since they lack viral genetic material, they exhibit a high degree of safety. The surface antigens of VLPs are arranged in a highly ordered manner, which can effectively induce an immune response. VLPs are a novel type of subunit vaccine.

This article provides a comprehensive review of the current application status of IBEVS in animal VLP vaccines, analyzes the existing problems of IBEVS and the corresponding strategies for solving them, and offers a reference for the further development of animal VLP vaccines.

Key words: virus-like particles; insect cell-baculovirus expression vector system (IBEVS); animal virus-like particle vaccines

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