

財團法人農業科技研究院 可移轉技術簡介

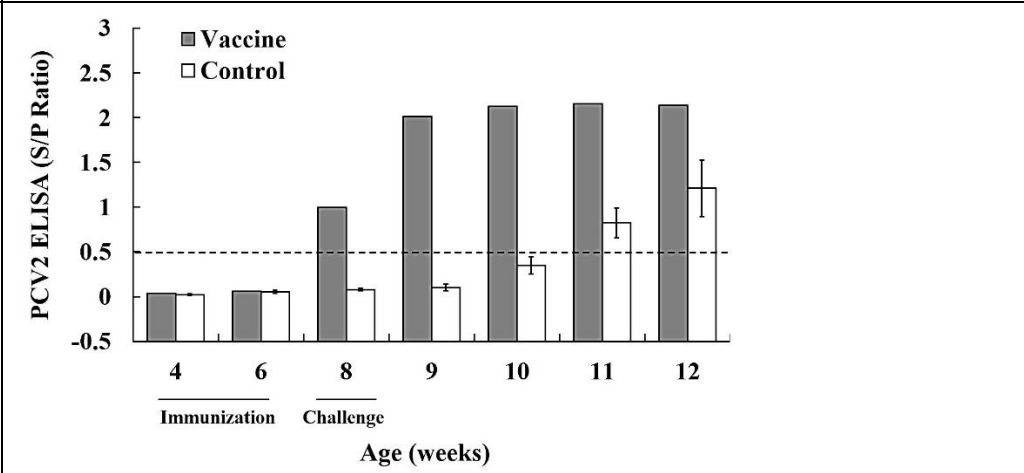
<p>技術名稱 Technology Term</p>	<p>豬第二型環狀病毒次單位疫苗</p> <p>Porcine circovirus type 2 (PCV2) subunit vaccine</p>
<p>技術發明人 Technology Representative</p>	<p>林俊宏、陳正文、王志鵬、彭子庭、黃文正、林慧傑、李蕙宇、楊程堯、王仕蓉</p> <p>Jiunn-Horng Lin, Zeng-Weng Chen, Jyh-Perng Wang, Tzu-Ting Peng, Wen-Zheng Huang, Hui-Jie Lin, Huei-Yu Lee, Cheng-Yao Yang, and Shih-Rong Wang</p>
<p>技術應用領域 Technology Field</p>	<p>動物用疫苗產業。</p> <p>Animal vaccine industry.</p>
<p>技術簡介 Technology Description</p>	<p>豬第二型環狀病毒(porcine circovirus type 2, PCV2)是引發豬離乳多系統衰竭綜合症之主要病原，亦常與其他病毒性或細菌性病毒混合感染，引起呼吸道綜合症和皮膚炎腎炎疾病等，造成育成率降低和飼料換肉率降低，嚴重衝擊養豬產業之經濟效益。除飼養管理外，實行免疫計畫是控制 PCV2 疫情之最佳策略。目前全球所販售之 PCV2 疫苗依製造方式主要分為 3 類，包括(1)不活化 PCV2 死毒疫苗、(2)以桿狀病毒所生產之次單位苗及(3)不活化 PCV1-PCV2 嵌合病毒疫苗。上述疫苗之製備時間較長、成本較高及製造技術門檻高。因此，本技術利用大腸桿菌表現系統生產 PCV2 次單位疫苗之抗原成份，並結合佐劑技術、發酵技術、蛋白質純化技術以及疫苗效力評估技術等關鍵核心技術，開發一新型 PCV2 次單位疫苗。該次單位疫苗具有容易生產、低成本、高安全性及有效之競爭優勢。</p> <p>Porcine circovirus type 2 (PCV2) is the etiologic agent of postweaning multisystemic wasting syndrome and usually co-infection with other viral or bacterial pathogens. The porcine circovirus-associated disease also causes respiratory disease complex, dermatitis and enteritis in pigs resulting lower survival rate and lower feed conversion rate. The disease seriously impacted economical benefits in swine industry. Except the feed management, vaccination is an effective way to control the disease. At present, there are mainly three kinds of commercial PCV2 vaccines divided into the manufacturing methods, including (1) inactivated PCV2 vaccine, (2) subunit vaccine produced by baculovirus expression system, and (3) inactivated chimeric PCV1-2 virus vaccine. The above commercial vaccines have the disadvantages of long preparation time, high cost and</p>

high level of manufacturing technology. Therefore, the technology used the *Escherichia coli* (*E. coli*) expression system for the production of active ingredients of PCV2 subunit vaccine. In addition, five core technologies which contain (1) improved antigen expression technology, (2) protein adjuvants technology, (3) *E. coli* high cell density fermentation technology, (4) one-step purification technology, and (5) vaccine efficacy evaluation technology were used to develop an innovative porcine circovirus type 2 (PCV2) subunit vaccine. The competitive advantages of this PCV2 subunit vaccine include ease of production, lower cost, safe, and highly effective.

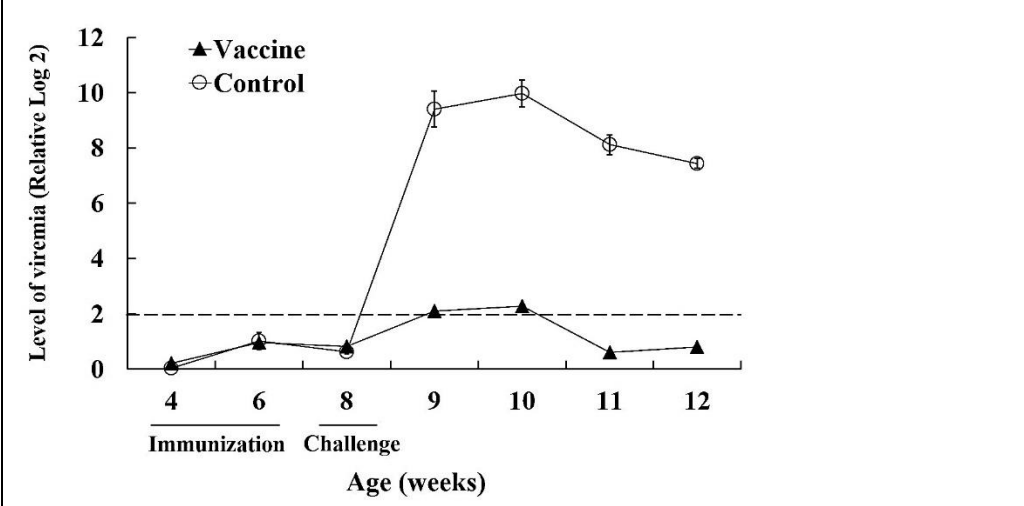
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技轉相關
圖/表



SPF 豬隻於 PCV2 次單位疫苗免疫與攻毒後之 anti-PCV2 抗體反應。



SPF 豬隻於 PCV2 次單位疫苗免疫與攻毒後之 PCV2 病毒血症情形。



PCV2 次單位疫苗之研發成果，於 2018 臺北生技獎競賽中，獲得「技轉合作獎」銅獎肯定。

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