

# Immunocastration of boars with GnRH-rPE conjugated antigen <sup>(1)</sup>

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## Abstract

Gonadotropin-releasing hormone (GnRH) is a self-antigen and a small molecule that usually could not elicit immune response. To generate an antibody against endogenous GnRH for immunocastration, it is necessary to link GnRH to immunocarriers for increased immunogenicity. *Pseudomonas aeruginosa* is an opportunistic pathogen often causing infection in domestic animals. The toxicity of *Pseudomonas* is mainly caused by exotoxin A which is an adenosine diphosphate (ADP)-ribosyl transferase. A truncated nontoxic *Pseudomonas aeruginosa* exotoxin A (rPE) modified by gene deletion was conjugated chemically with GnRH, and the GnRH-rPE conjugate was used as an immunogen to immunize boars. The results showed that boars immunized with GnRH-rPE conjugated successfully and induced the generation of anti-GnRH and anti-PE antibodies. The immune response against GnRH resulted in the atrophy of various male reproduction related organs, in conjunction with a significantly decreased serum testosterone concentration to a level similar to castrated boars, which persisted until the end of the study (29 weeks) when boars were ready for release to the market. These results demonstrated that GnRH-rPE conjugates can be used to produce a potential castration vaccine for domestic animals.

Key words: Immunocastration, Gonadotropin-releasing hormone (GnRH), *Pseudomonas aeruginosa* (PE), Boars.

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