

Fact Sheet Compiled by: Monica McDonald
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Porcine Zona Pellucida (PZP)

Product Type

Immunocontraceptive (anti-ZP vaccine)

Manufacturer

Science and Conservation Center

Product information

Derived from porcine zona pellucida, the PZP vaccine induces the immune system to produce antibodies that prevent the attachment of sperm to ova and, thus, blocks fertilization. It has been effective in artiodactyls, perissodactyls, pinnipeds, elephants and bears.

Adjuvant information

The only adjuvant used in the PZP vaccine is Freund's Modified adjuvant, which does not cause TB-positive test results, and incidence of injection site reactions is less than 0.05%. Following the initial treatments, boosters are required, using only Freund's Incomplete adjuvant.

Safety to humans

There is no health risk to humans when administered as directed.

Ordering

To order PZP, contact Kim Frank at the Science and Conservation Center:

Kim Frank

Science and Conservation Center

Zoo Montana

2100 South Shiloh Road

Billings, MT 59106

406-652-9719; fax: 406-652-9733

kfrank@sccpzp.org

Latency to effectiveness

PZP is not effective until after at least 2 injections (typically given at 2-4 week intervals), depending upon species and adjuvant. There must be a minimum 2-week interval after the second dose of the initial series before the male is placed with the female.

Signs of estrus during treatment

PZP does not suppress estrous cycles and may extend the breeding season beyond what is considered typical, resulting in additional estrous cycles. Cycling may continue with PZP, but then become irregular and eventually cease with repeated treatment.

Duration of efficacy and reversibility

Six months to a year, depending upon species. Because reversal becomes less likely with repeated treatment, use should be limited to 3-4 consecutive years or to animals not essential for breeding programs (Kirkpatrick et al., 1995).

Use during pregnancy

Does not interrupt or prolong pregnancy or affect fetal development (Kirkpatrick et al., 1995).

Use during lactation

No known contraindications found in feral mares (Kirkpatrick et al., 1995). Information on the effect of lactation in other species is lacking.

Use in pre-pubertal animals

Lack of published data on pre-pubertal treatment contraindicates recommending contraception before puberty.

Precautions

In domestic rabbits and dogs, PZP caused depletion of oocytes and, in some primates, it caused temporary cessation of estrous cycles (Kirkpatrick et al., 1995). There are few data for carnivores, aside from pinnipeds and bears, and research with felids indicates that the antibodies will not cross-react with the sperm receptors. Therefore, its use in carnivores is recommended only for pinnipeds and bears. It is not effective in suids. Contact the Science and Conservation Center (<https://www.sccpzp.org/>) if you have further questions about this or any other section in this document.

Consideration for seasonal breeders

Because PZP is not effective until after at least 2 injections (typically given 2-4 weeks apart), depending upon species and adjuvant, treatment should be initiated at least 2 months before the anticipated onset of the breeding season.

Reporting Requirements

All institutions using PZP must submit a survey to Kim Frank at the Science and Conservation Center. In addition, all institutions are asked to contribute contraception information for their animals to the AZA Reproductive Management Center's Contraception Database (<https://www.zoocontraceptiondata.org>). It is essential that accurate records of doses and treatment intervals be maintained, and results reported, to contribute to dosage development.

For questions about the RMC Contraception Database, contact:

Ashley Franklin, Program Analyst
AZA Reproductive Management Center
One Government Drive
Saint Louis, MO 63110
301-956-0171; fax: 314-646-5534
franklin@stlzoo.org

References:

- Kirkpatrick, J. F., Naugle, R., Liu, I. K. M., Bernoco, M. and Turner, Jr., J. W. (1995). Effects of seven consecutive years of porcine zona pellucida contraception on ovarian function in feral mares. *Bio. Reprod. Monograph Series 1: Equine Reproduction VI*: 411-418.
- Raphael, B. L., P. Kalk, P. Thomas, P. P. Calle, J. G. Doherty, and R. A. Cook. (2003), Use of melengestrol acetate in feed for contraception in herds of captive ungulates. *Zoo Biology* 22(5), 455-463.