

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Health Effects

MEMORANDUM

Date: August 4, 2009

SUBJECT: Gonacon™ Immunocontraceptive Vaccine for use in White-Tailed Deer.
Section 3 Registration.

PC Code: 116800

Decision No.: 404955

Petition No.: N/A

Risk Assessment Type: Non-food use

TXR No.: N/A

MRID No.: N/A

DP Barcode: D363061

Registration No.: N/A

Regulatory Action: Section 3

Case No.: N/A

CAS No.: 9034-40-6

40 CFR: N/A

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FROM: Kit Farwell, DVM, DABT
Risk Assessment Branch VII
Health Effects Division (7509P)
Office of Pesticide Programs

THROUGH: Michael Metzger, Branch Chief
Risk Assessment Branch VII
Health Effects Division (7509P)
Office of Pesticide Programs

TO: Autumn Metzger, Product Manager
Insecticide/Rodenticide Branch
Registration Division (7505P)
Office of Pesticide Programs

I. CONCLUSIONS

HED has no objections to the Section 3 registration of Gonacon™. There are no risk concerns because of the very limited potential worker and dietary exposure.

II. BACKGROUND

The U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) has applied for a Section 3 registration for Gonacon™. Gonacon™ is an injectable immunocontraceptive vaccine containing the active ingredient gonadotropin releasing hormone (GnRH). The application is for use of Gonacon™ by USDA APHIS Wildlife Services or state wildlife agency personnel or persons working under their authority to control the populations of white-tailed deer. Gonacon™ was formerly being developed as an investigational new animal drug under authority of the Food and Drug Administration, however, regulatory authority for contraceptives used in wild and feral animals has since been transferred to the EPA.

III. DISCUSSION

Ingredients: Gonacon™ contains GnRH as the active ingredient. GnRH is a 10 amino acid peptide hormone with the same amino acid sequence in most mammals. Because injection of GnRH alone would not stimulate an immune response, it is conjugated with a large carrier protein which is recognized by the body as "foreign" and will cause an immune response. Gonacon™ also contains an adjuvant. Adjuvants are used in vaccines to provide a local inflammatory response and enhance the immune response to a vaccine. The carrier protein and adjuvant are listed in the confidential statement of formula.

Mode of Action: Gonacon™ contains gonadotropin-releasing hormone (GnRH) to be hand injected intramuscularly by syringe. The injection stimulates an antibody response against GnRH. GnRH normally stimulates the production of the sex hormones, estrogen, progesterone, and testosterone. By blocking GnRH, the deer's body produces less of these sex hormones and becomes infertile for one or more years. Gonacon™ thus functions by stimulating an immune response and not by hormonal action.

Dietary Exposure: There is little likelihood of exposure to hormonally active compound from deer meat because GnRH is a protein which is digested and not absorbed intact. Like other proteins, GnRH is too large and polar to pass through the membranes of the gastrointestinal tract. Proteins are digested into their component amino acids in the stomach and small intestines. For these reasons, GnRH when used therapeutically in people and animals is always injected and not administered by the oral route.

Occupational Exposure: Applicators could be exposed to Gonacon™ by accidental self-injection which could result in the same effects as occur in deer, *i.e.* infertility. Granulomas, a type of tissue reaction, due to the adjuvant may also occur. The likelihood of accidental self-injection will be minimized because applicators trained in wildlife management and injecting of wild animals will be hand injecting Gonacon™.

Hazard: Toxicology data requirements for Gonacon™ were waived because of the very limited possibility of human exposure. No endpoints were selected and there are no concerns for sensitivity of infants and children because exposure to children is not expected. No public health

or epidemiology data or reports in the public literature relevant to this assessment were found in a PubMed® literature search.

Other products containing GnRH: GnRH injections are used in humans to induce ovulation and to test hypothalamic-pituitary function. GnRH injections have also been used to treat prostate cancer in humans and benign prostatic hyperplasia in dogs. GnRH injections have been injected into boars in Australia to reduce odor in meat.

GnRH is approved by the FDA/Center for Veterinary Medicine to treat ovarian cysts in dairy cattle. There is no tolerance in tissues, withdrawal time is zero, and an official analytic method was not required because there is no withdrawal period.

Data needs: There are no data gaps for Gonacon™. Toxicology and exposure data are waived.

Regulatory recommendations: HED has no objections to the Section 3 registration of Gonacon™. There are no risk concerns because of the very limited potential worker and dietary exposure.