1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Suprelorin 9.4 mg implant for dogs and ferrets

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance:

Deslorelin (as deslorelin acetate) 9.4 mg

Excipients:

Qualitative composition of excipients and other constituents
Hydrogenated palm oil
Lecithin

White to pale yellow cylindrical implant.

3. CLINICAL INFORMATION

3.1 Target species

Dogs (male) and ferrets (male).

3.2 Indications for use for each target species

For the induction of temporary infertility in healthy, entire, sexually mature male dogs and ferrets.

3.3 Contraindications

None.

3.4 Special warnings

Dogs

Infertility is achieved from 8 weeks up to at least 12 months after initial treatment. Treated dogs should therefore still be kept away from bitches on heat within the first 8 weeks after initial treatment.

In 2 out of 30 dogs in the clinical trial infertility was not achieved until approximately 12 weeks after initial treatment, but in most cases these animals were not capable of successfully siring offspring. Should a treated dog mate with a bitch between 8 and 12 weeks after treatment, appropriate measures should be taken to rule out the risk of pregnancy.

Uncommonly, lack of expected efficacy has been reported in dogs (in the majority of reports a lack of reduction in testicle size was reported and/or a bitch was mated). Only testosterone levels (i.e. an established surrogate marker of fertility) could definitely confirm a lack of efficacy of the treatment. If lack of treatment efficacy is suspected, then the dog's implant (e.g. presence) should be checked.

Any mating that occurs more than 12 months after the administration of the veterinary medicinal product may result in pregnancy. However, it is not necessary to keep bitches away from treated dogs

following subsequent implantations for the initial 8 week period, provided that the veterinary medicinal product is administered every 12 months.

In certain cases, the implant may be lost from a treated dog. If loss of the implant is suspected in connection with the first implantation, this can be confirmed by observing no reduction in scrotal circumference or plasma testosterone levels after 8 weeks from the suspected date of loss, as both should reduce under correct implantation. If loss of the implant is suspected following re-implantation after 12 months, a progressive increase will be seen in scrotal circumference and/or plasma testosterone levels. In both of these circumstances a replacement implant should be administered.

The ability of dogs to sire offspring following their return to normal plasma testosterone levels, after the administration of the veterinary medicinal product, has not been investigated.

With respect to testosterone levels (an established surrogate marker of fertility), during clinical trials 68 % of dogs administered one implant, returned to fertility within 2 years of implantation. 95 % of dogs had returned to normal plasma testosterone levels within 2.5 years of implantation. However, data demonstrating the complete reversibility of clinical effects (reduced testicular size, reduced ejaculation volume, reduced sperm count and reduced libido) including fertility after 12 months, or repeated implantation, are limited. In very rare cases the temporary infertility may last more than 18 months.

Due to limited data, the use of Suprelorin in dogs of less than 10 kg or more than 40 kg bodyweight should be subject to a risk/benefit assessment performed by the veterinarian. During clinical trials with Suprelorin 4.7 mg, the mean duration of testosterone suppression was 1.5 times longer among smaller size dogs (< 10 kg) compared with all larger dogs.

Surgical or medical castration might have unexpected consequences (i.e. improvement or worsening) on aggressiveness. Thus dogs with sociopathic disorders and showing episodes of intra-specific (dog to dog) and/or inter-specific (dog to another species) aggressions should not be castrated either surgically or with the implant.

Ferrets

Infertility (suppression of spermatogenesis, reduced testis size, levels of testosterone below 0.1 ng/ml, and suppression of musky odour) is achieved between 5 weeks and 14 weeks after initial treatment under laboratory conditions. Treated ferrets should therefore still be kept away from jills on heat within the first weeks after initial treatment.
Levels of testosterone remain below 0.1 ng/ml for at least 16 months. Not all parameters of sexual activity have been tested specifically (seborrhoea, urine marking, and aggressiveness). Any mating that occurs more than 16 months after the administration of the product may result in pregnancy.

The need for subsequent implantations should be based on the increase in testis size and/or increase in plasma testosterone concentrations and return to sexual activity.

The reversibility of effects and ability of treated hobs to produce offspring subsequently has not been investigated. Therefore, the use of Suprelorin should be subject to a benefit/risk assessment performed by the responsible veterinarian.

In certain cases, the implant may be lost from a treated ferret. If loss of the first implant is suspected, then this can be confirmed by observing no reduction in testis size or plasma testosterone levels as both should reduce under correct implantation. If loss of the implant is suspected following re-implantation, then a progressive increase will be seen in testis size and/or plasma testosterone levels. In both of these circumstances a replacement implant should be administered.

3.5 Special precautions for use

Special precautions for safe use in the target species:

Dogs

The use of Suprelorin in pre-pubertal dogs has not been investigated. It is therefore recommended that dogs should be allowed to reach puberty before treatment with the veterinary medicinal product is initiated.

Data demonstrate that treatment with the veterinary medicinal product will reduce the libido of the dog.

Ferrets

The use of the veterinary medicinal product in pre-pubertal ferrets has not been investigated. It is therefore recommended that ferrets should be allowed to reach puberty before treatment with the veterinary medicinal product is initiated.

Treatment in ferrets should be initiated at the beginning of the breeding season.

The treated hobs may remain infertile up to four years. The veterinary medicinal product should therefore be used prudently in hobs intended for future reproduction.

The safety after repeated implantations with Suprelorin in ferrets has not been investigated.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:

Pregnant women should not administer the veterinary medicinal product. Another GnRH analogue has been shown to be foetotoxic in laboratory animals. Specific studies to evaluate the effect of deslorelin when administered during pregnancy have not been conducted.

Although skin contact with the veterinary medicinal product is unlikely, should this occur, wash the exposed area immediately, as GnRH analogues may be absorbed through the skin.

When administering the veterinary medicinal product, take care to avoid accidental self-injection by ensuring that animals are suitably restrained and the application needle is shielded until the moment of implantation.

In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician, with a view to having the implant removed.

Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Dogs:

Common (1 to 10 animals / 100 animals treated):	Implant site swelling[1]
Rare (1 to 10 animals / 10,000 animals treated):	Hair change (Hair loss, Alopecia, Hair modification) Urinary incontinence Reduced testicle size Decreased activity, Weight gain

Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Ascending testicle[2], Increased testicle size[3], Testicular pain[3] Increased sexual interest[3], Aggression[4] Epileptic seizures[5]

[1]Moderate, for 14 days
[2]Through the inguinal ring
[3]Immediately following implantation, transitory, resolving without treatment
[4]Transient
[5]On average 40 days after implantation, median time to onset of signs was 14 days after implantation, on the same day of implantation at the earliest, and 36 weeks after implantation at the latest.

Ferrets:

Common (1 to 10 animals / 100 animals treated):	Implant site swelling[1], Implant site pruritus[1], Implant site erythema[1]

[1]Transient, moderate

Reporting adverse events is important. It allows continuous safety monitoring of a veterinary medicinal product. Reports should be sent, preferably via a veterinarian, to either the marketing authorisation holder or its local representative or the national competent authority via the national reporting system. See the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

Not applicable.

3.8 Interaction with other medicinal products and other forms of interaction

None known.

3.9 Administration routes and dosage

Dogs:

Subcutaneous use.

The recommended dose is one implant per dog, irrespective of the size of the dog (see also point 3.4). Disinfection of the implantation site should be undertaken prior to implantation to avoid introduction of infection. If the hair is long, a small area should be clipped, if required.

The veterinary medicinal product should be implanted subcutaneously in the loose skin on the back between the lower neck and the lumbar area. Avoid injection of the implant into fat, as release of the active substance might be impaired in areas of low vascularisation.

1. Remove Luer Lock cap from the implanter.

2. Attach the actuator to the implanter using the Luer Lock connection.

3. Lift the loose skin between the shoulder blades. Insert the entire length of the needle subcutaneously.

4. Fully depress the actuator plunger and, at the same time, slowly withdraw the needle.

5. Press the skin at the insertion site as the needle is withdrawn, and maintain pressure for 30 seconds.

6. Examine the syringe and needle to ascertain that the implant has not remained within the syringe or needle, and that the spacer is visible. It may be possible to palpate the implant *in situ*.

Repeat administration every 12 months to maintain efficacy.

Ferrets:

Subcutaneous use.

The recommended dose is one implant per ferret, irrespective of the size of the ferret.
Disinfection of the implantation site should be undertaken prior to implantation to avoid introduction of infection. If the hair is long, a small area should be clipped, if required.

It is recommended that the product should be administered under general anaesthesia in ferrets.

The product should be implanted subcutaneously in the loose skin on the back in the intrascapular space. Avoid injection of the implant into fat, as release of the active substance might be impaired in areas of low vascularisation.

1. Remove Luer Lock cap from the implanter.

2. Attach the actuator to the implanter using the Luer Lock connection.

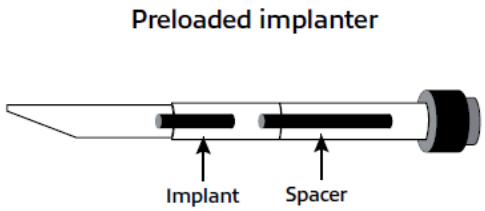
3. Lift the loose skin between the shoulder blades. Insert the entire length of the needle subcutaneously.

4. Fully depress the actuator plunger and, at the same time, slowly withdraw the needle.

5. Press the skin at the insertion site as the needle is withdrawn, and maintain pressure for 30 seconds.

6. Examine the syringe and needle to ascertain that the implant has not remained within the syringe or needle, and that the spacer is visible. It may be possible to palpate the implant *in situ*. Tissue glue is recommended to close the site of administration if required.

The need for subsequent implantations should be based on the increase of testis size and/or increase in plasma testosterone concentrations as well as return to sexual activity. See also point 3.4.



Dogs and ferrets:

Do not use the veterinary medicinal product if the foil pouch is broken.

The biocompatible implant does not require removal. However, should it be necessary to end treatment, implants may be surgically removed by a veterinarian. Implants may be located using ultrasound.

3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)

Ferrets:
There is no information available in ferrets.

Dogs:
No clinical adverse reactions other than those described in section 3.6 have been observed following subcutaneous administration of up to 6 times the recommended dose. Histologically, mild local reactions with chronic inflammation of the connective tissue and some capsule formation and collagen deposition have been seen at 3 months after administration following simultaneous subcutaneous administration of up to 6 times the recommended dose.

3.11 Special restrictions for use and special conditions for use, including restrictions on the use of antimicrobial and antiparasitic veterinary medicinal products in order to limit the risk of development of resistance

Not applicable.

3.12 Withdrawal periods

Not applicable.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QH01CA93.

4.2 Pharmacodynamics

The GnRH agonist, deslorelin, acts by suppressing the function of the pituitary-gonadal axis when applied in a low, continuous dose. This suppression results in the failure of treated animals to synthesise and/or release follicle stimulating hormone (FSH) and luteinising hormone (LH), the hormones responsible for the maintenance of fertility.

The continuous low dose of deslorelin will reduce the functionality of the male reproductive organs, libido and spermatogenesis and lower the plasma testosterone levels, from 4 to 6 weeks after implantation. A short transient increase in plasma testosterone may be seen immediately after implantation. Measurement of plasma concentrations of testosterone has demonstrated the persistent pharmacological effect of the continuing presence of deslorelin in the circulation for at least 12 months following administration of the veterinary medicinal product.

4.3 Pharmacokinetics

It has been shown in dogs that plasma deslorelin levels peak 7 to 35 days following administration of an implant containing 5 mg radiolabelled deslorelin. The substance can be directly measured in the plasma up to approximately 2.5 months post implantation. The metabolism of deslorelin is rapid.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

None known.

5.2 Shelf life

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.

5.3 Special precautions for storage

Store in a refrigerator (2 °C – 8 °C).

Do not freeze.

5.4 Nature and composition of immediate packaging

The implant is supplied in a pre-loaded implanter. Each pre-loaded implanter is packaged in a sealed foil pouch, which is subsequently sterilised.

Cardboard carton containing either two or five individually foil wrapped implanters that have been sterilised, together with an implanting device (actuator) that is not sterilised. The actuator is attached to the implanter using the Luer Lock connection.

Not all pack sizes may be marketed.

5.5 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

Medicines should not be disposed of via wastewater or household waste.

Use take-back schemes for the disposal of any unused veterinary medicinal product or waste materials derived thereof in accordance with local requirements and with any national collection systems applicable to the veterinary medicinal product concerned.

The actuator can be re-used.

6. NAME OF THE MARKETING AUTHORISATION HOLDER

VIRBAC

7. MARKETING AUTHORISATION NUMBER(S)

EU/2/07/072/003
EU/2/07/072/004

8. DATE OF FIRST AUTHORISATION

Date of first authorisation: 10/07/2007

9. DATE OF THE LAST REVISION OF THE SUMMARY OF THE PRODUCT CHARACTERISTICS

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available in the Union Product Database (*https://medicines.health.europa.eu/veterinary*).