



Animal name: Orycteropodidae, Ochotonidae and Rodentia

Fact Sheet Compiled by: Veronica Cowl

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Fact Sheet Reviewed by: Gidona Goodman & Tai Strike

We would recommend supplementing any contraceptive bout with behavioural and hormone monitoring. For more information on this, please contact contraception@chesterzoo.org

Contraceptive methods	GnRH agonist (implant)	GnRH agonist (injection)	Progestagen (implants)	Progestagen (implant)	Progestagen (injection)	Progestagen (injection)	Permanent
Contraceptive Product:	Deslorelin acetate	Luprolide acetate	Etonogestrel 68 mg	Levonorgestrel 2x 75mg	medroxyprogesterone acetate	proligestrone 100mg/ml	
Commercial Name:	Suprelorin® (1 record)	Lupron® (0 records)	Implanon® Nexplanon® (0 records)	Norplant® Norplant-2® (0 records)	Depo-Provera®, Depo-Progevera® (1 record)	Delvosteron® (0 records)	0 records
Product Availability:	4.7mg ("Suprelorin 6") and 9.4 mg ("Suprelorin 12") widely available through veterinary drug distributors in the EU.	Luprolide acetate licenced for human use	Manufactured by Bayer Schering Pharma AG. Available through human drug distributors	Manufactured by Organon. Available through human drug distributors	Manufactured by Pfizer. Widely available throughout Europe through human drug distributors.	Manufactured by MSD animal Health UK, Intervet Europe. Licensed for use in female dogs, cats, and ferrets; available through veterinary distributors.	N/A
Restrictions and/or permit required by Importing Country:	EGZAC recommends: always check with your local licencing authority	Data deficient	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	N/A
Mechanism of action:	GnRH agonists suppress the reproductive endocrine system, preventing production of pituitary and gonadal hormones. As an agonist of the GnRH it initially stimulates the reproductive system -which can result in oestrus and ovulation in females or temporary enhancement of testosterone and spermatogenesis in males- therefore additional contraception needed during this time. Please see below and refer to Deslorelin datasheet for detailed information	GnRH agonist suppresses the reproductive endocrine system, preventing production of pituitary and gonadal hormones	Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Anti-estrogenic activity. Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Anti-estrogenic activity. Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Castration:Permanent contraception by surgical gonadectomy, with similar side effects to those in domestic species - weight gain, loss of secondary sex characteristics; Vasectomy: Surgical procedure in which the ductus deferens are cut, tied, cauterized, or otherwise interrupted; Ovariohysterectomy: removal of one or both ovaries and the uterus; Ovariectomy: removal of the ovaries; Tubal ligation: fallopian tubes are clamped and blocked, or severed and sealed.
Insertion/Placement:	Sub-cutaneous, in a place where it can be easily detected or seen for removal at a later date (i.e. upper inner arm); refer Suprelorin fact sheet for effective method of implant placement (tunnelisation)	Injectable	Intramuscular or subcutaneous. EGZAC recommends sub-cutaneous, upper inner arm for visibility (aid for later removal)	Intramuscular or subcutaneous. EGZAC recommends sub-cutaneous, upper inner arm for visibility (aid for later removal)	Injectable intramuscular	Injectable subcutaneously - do not inject intradermally or into subcutaneous fat or scar tissue	Surgical
Females	Data deficient	Data deficient	Data deficient	Data deficient	Data deficient	Data deficient	Ovariohysterectomy/Ovariectomy/Tubal ligation
Dose	Dosages and duration of efficacy have not been well established. Our database suggests 1 implant should be sufficient for individuals <17kgs. For heavier individuals, 2 implants are advised. Please contact EGZAC for dosage recommendations.	Dosing information is not available; extrapolation from human literature is likely the best place to start. Please contact EGZAC for dosage recommendations.	Data deficient. Our database suggests dosages between 1/4 to 1/2 of an implant depending on species and weight. Please contact EGZAC for dosage recommendations.	Data deficient. 2 rods of Norplant/ 1 rod Norplant-2 depending on species and weight. Please contact EGZAC for dosage recommendations.	Data deficient. 2.5 mg/kg body weight every 2-3 months. For capybara (Hydrochoerus hydrochaeris) a higher dosage seems to be required (~15mg/kg; from information in our database). Please contact EGZAC for dosage recommendations.	Data deficient. Product dosage suggests 1.0-1.5 mL for individuals <5kg. This drug is only advisable as a short term contraceptive e.g. to suppress post-partum oestrus, introduction of newly vasectomised male . Repeated use not advised. Please contact EGZAC for dosage recommendations.	N/A

Latency to effectiveness:	Data deficient in this group. 3 weeks average as GnRH agonist initially stimulates the reproductive system- please refer to Deslorelin datasheet for detailed information - additional contraception is needed during this time in order to suppress the initial stimulation phase (see product data sheet. ~2mg/kg Megestrol acetate pills /Ovarid® daily 7 days before and 8 days after has been used to suppress initial stimulation phase)	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	N/A
Oestrus cycles during contraceptive treatment:	Initial oestrus and ovulation (during the 3 weeks of stimulation) may occur and then no oestrus cycle. To suppress the initial oestrus and ovulation with the concomitant progesterone production and the associated deleterious effects of this you MUST follow the megestrol acetate protocol mentioned above.	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	N/A
Use during pregnancy:	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	N/A
Use during lactation:	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	N/A
Use in prepubertals or juveniles:	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet	N/A
Use in seasonal breeders:	Data deficient.	Data deficient. Should start at least 1 months prior the breeding season.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	N/A
Duration	Duration of efficacy has not been well established as a guide: 4.7 mg implants will suppress for a minimum of 6 months; 9.4mg will be effective for a minimum of 12 months.	Data deficient. Not well established, duration of effect being likely related to the dose. Higher doses result in longer duration of effect. Lupron® is available in various formulations lasting from 1 to 6 months, but because the release of hormone from the depot formulation varies by individual, actual duration of efficacy can vary considerably.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	N/A
Reversibility	Deslorelin is considered reversible. 1 example of reversal within 1 year in a prehensile tailed porcupine. It is recommended to remove the implant to aid reversibility.	Data deficient. Considered reversible but every species has not been tested.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Not considered reversible.
Effects on Behaviour	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	N/A
Effects on sexual physical characteristics	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	Data deficient.	N/A
Males	Data deficient	Data deficient	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Castration/Vasectomy
Dose	Data deficient. Our database suggests 1 implant should be sufficient for individuals <17kgs. For heavier individuals, 2 implants are advised. Please contact EGZAC for dosage recommendations.	Data deficient						Recommended to be done by closed or intra-abdominal techniques.
Latency to effectiveness:	Depending on the species there may be fertile sperm present in vas deferens for 6-8 weeks post treatment or even longer. Testosterone decreases after 3-4 weeks but sperm can stay fertile for many weeks after.	Data deficient						N/A

Use in prepubertals or juveniles:	Data deficient in this group, see product information sheet	Data deficient in this group, see product information sheet					N/A
Use in seasonal breeders:	Data deficient. Should start at least 2 months prior the breeding season.	Data deficient. Should start at least 2 months prior the breeding season.					N/A
Duration and Reversibility	Deslorelin is considered reversible. We have 3 examples of reversal ranging between weeks after contraception expiration to 9 months in capybara and African crested porcupines. It is recommended to remove the implant to aid reversibility.	Lupron is considered reversible. Data deficient in this group, see product information sheet.					Not considered reversible.
Effects on Behaviour	Testosterone related aggression is likely to decrease. Data deficient in this group, see product information sheet.	Data deficient. Same as deslorelin.					N/A
Effects on sexual physical characteristics	Data deficient in these taxa. Likely that body size may decrease, decrease testicular size, feminisation of males. Similar to gonadectomy but reversible	Data deficient in these taxa. Likely that some dichromatic species may change colour if testosterone related. Decrease in body size, feminisation of males.					N/A
General:							
Side effects	A more recently developed Suprelorin®/ deslorelin protocol using Ovarid®/Megace®/megestrol acetate to prevent the initial stimulation phase, followed by implant removal when reversal is desired, may be a safer contraceptive option.						
Warnings	Causes initial gonadal stimulation that MUST be suppressed (see above); correct administration essential - see product information sheet						Care must be taken during castration to ensure the inguinal canals are closed following removal of the testicles to prevent post-surgical hernia of the bladder, fat tissue or seminal glands. Infection of the surgical wound might occur. Intradermal closure of the skin is advised together with with analgesia
Reporting Requirements: In order to increase our knowledge of the efficacy of contraception methods in the Orycteropodidae, Ochotonidae and Rodentia families it is recommended that all individuals on contraception be reported to EGZAC							

References:

- 1) Control of Reproduction in Ferrets, Rabbits and Rodents. E Risi, *Reproduction in Domestic Animals* 81-86 (2014)
- 2) Wildlife Contraception: Issues, Methods, and Applications. C.A. Asa & I.J. Porton (Eds.), 182 (2005)

Disclaimer: EGZAC endeavours to provide correct and current information on contraception from various sources. As these are prescription only medicines it is the responsibility of the veterinarian to determine the dosage and best treatment for an individual