Animal name: Slender loris (*Loris sp.*)

Fact Sheet Compiled by: **Veronica Cowl**
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Fact Sheet Reviewed by: EGZAC Working Group
We would recommend assessing 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)	Vasectomy
Contraceptive Product:	Deslorelin acetate	Luprolide acetate	Etonogestrel 68 mg	Levonorgestrel 2x 75mg	medroxyprogesterone acetate;	
Commercial Name:	Suprelorin ®	Lupron ®	Implanon® Nexplanon®	Jadelle®	Depo-Provera®, Depo-Progevera®	
Product Availbility:	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	Manufactired by Bayer Schering Pharma AG. Available through human drug distributors	Manufactired by Organon. Available through human drug distributors	Manufactured by Pfizer. Widely avilable throughout Europe through human drug distributors.	N/A
Restrictions and/or permit required by Importing Country:	EGZAC reccommends: always check with your local licencing authority	Data deficient	EGZAC reccommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	EGZAC reccommends: always check with your local licencing authority	N/A
Mechanism of action:	GnRH agonist suppress the reproductive endocrine system, preventing production of pituitary and gonadal hormones. As an agonist of the GnRH 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 belwo and refer to Deslorelin datasheet for detailed information	GnRH agonist suppress 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	Surgical procedure in which the ductus deferens are cut, tied, cauterized, or otherwise interurrupted
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	Surgical
Females		**Data deficient**				
Dose	1 x 4.7 mg or 1 x 9.4 mg implants	Dosing information is not available; extrapolation from human literature is likely the best place to start	Recommended 1/3 to 1/2 an implant. Failures have been experienced at 1/4 implant.	Recommended 1/2 rod. Doses not well established.	5mg/kg body weight is effective for approximately 30 days. Depo-Provera is only recommended as a short-term contraceptive.	N/A
Latency to effectiveness:	3 weeks average - additional contraception needed during this time (**please see product data sheet**). In slender loris 5mg Megestrol acetate pills (Megace/Ovarid) daily 7 days before and 7 days after implant has been placed.	Same as deslorelin with an initial stimulation phase and suppression should then occur 3-4 weeks later (please refer to deslorelin and lupron datasheet for more details)	In general inhibition of ovulation after 1 day when inserted on day 1-5 of cycle or when replacing oral progestogen. As the right stage during menstrual cycle is often unknown, it is advised to use other contraceptive methods for at least 7-14 days after insertion of the implant depending on administration route (IM or SC).	In general inhibition of ovulation after 1 day when inserted on day 1-5 of cycle or when replacing oral progestogen. As the right stage during menstrual cycle is often unknown, it is advised to use other contraceptive methods for at least 7-14 days after insertion of the implant depending on administration route (IM or SC).	1-3 days post injection. However, if the cycle stage is not known then extra time must be allowed; therefore, separation of the sexes or alternative contraception should be used for at least 1 week. Depo-Provera injection can be used to prevent the post-partum oestrus until a suitable longer term implant can be placed or as longer term contraception.	N/A
Oestrus cycles during contraceptive treatment:	Initial oestrus and ovulation (during the 3 weeks of stimulation) then no oestrus cycle. To supress the initial oestrus and ovulation you can follow the megestrol acetate protocol mentioned above.	Same as deslorelin.	Oestrus is inhibited. Menstruation in non-human primates are more or less present with regular cyclicity. This is an individual and dose-dependent response.	Oestrus is inhibited. Menstruation in non-human primates are more or less present with regular cyclicity. This is an individual and dose-dependent response.	Oestrus behaviour may be observed. Ovulation and cycling can occur in adequately contracepted individuals (but is unlikely and the degree of suppression is dose dependent).	N/A
Use during pregnancy:	**Not recommended**	Not recommended	In non-human primates progestagens normally do not interfere with parturition. However in other species progestagens are not recommended for use in pregnant animals because of the risk of prolonged gestation, stillbirth or abortion.	In non-human primates progestagens normally do not interfere with parturition. However in other species progestagens are not recommended for use in pregnant animals because of the risk of prolonged gestation, stillbirth or abortion.	Progestagens are not recommended in pregnant animals because of the possibility of prolonged gestation, stillbirth, abortion, etc. In some species, although the effect may depend on dose. Progestagens in late pregnancy seem not to interfere with parturition in primates, but this is a taxon-specific phenomenon.	N/A
Use during lactation:	No contraindications once lactation established	No contraindications once lactation established	Considered safe for nursing; Does not affect lactation, but etonogestrel is excreted in milk.	Considered safe for nursing infant.	Considered safe for nursing infant.	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	The use of synthetic progestagens in prepubertals or juveniles has not been fully assessed. Possible long-term effects on fertility are not known.	The use of synthetic progestagens in prepubertals or juveniles has not been fully assessed. Possible long-term effects on fertility are not known.	The use of synthetic progestagens in prepubertals or juveniles has not been fully assessed. Possible long-term effects on fertility are not known.	N/A
Use in seasonal breeders:	**Data deficient**. Should start at least 1 month prior the breeding season.	**Data deficient.** Should start at least 1 month prior the breeding season.	N/A	N/A	N/A	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; 9.4 mg will be effective for a **minimum** of 12 months	Not well established, duration of effect being likely related to the dose. Higher doses result in longer duration of effect. This is extremely data deficient	2-3 years in various primates.	2-3 years in various primates.	Dose dependant: 30 days in general. However, effects could last 1-2 years in some individuals.	N/A

Reversibilty	**Data deficient in this species.** Considered reversible but every species has not been tested, duration to reversibility vary on an individual basis. Removal of the implant is recommended to facilitate time to reversal. Implants should therefore be placed in a location that facilitates implant location and removal e.g. armpit, navel, inner thigh.	Considered reversible but every species has not been tested. duration to reversibility extremely variable.	Designed to be fully reversible but individual variations can occur. To increase potential for full reversibility implants must be removed.	Designed to be fully reversible but individual variations can occur. To increase potential for full reversibility implants must be removed.	Designed to be fully reversible but individual variations can occur.	N/A
Effects on Behaviour	None observed except lack of libido.	Same as deslorelin	Effects on behaviour have not been studied, every individual may react differently. Because progestagens can suppress ovulation it can be expected that courtship and mating behaviour will be affected in some way. Further research in the subject is necessary.	Effects on behaviour have not been studied, every individual may react differently as it binds readily to androgen receptors and is antiestrogenic, females may experience male-like qualities (increased aggression , development of male secondary sex characteristics, etc.) Further research in the subject is necessary.	Effects on behaviour have not been studied, every individual may react differently. Because progestagens can suppress ovulation it can be expected that courtship and mating behaviour will be affected in some way. At high doses can have masculinising effect. Further research in the subject is necessary.	N/A
Effects on sexual physical characteristics	Similar to gonadectomy	Some dichromatic species may change colour.	Some signs of oestrus behaviour might occur. Ovulation may also occur even though pregnancy does not ensue.	Some signs of oestrus behaviour might occur. Ovulation may also occur even though pregnancy does not ensue.	See above	N/A
Males		**Data deficient**	**Not Recommended**	**Not recommended**	**Not recommended**	
Dose	Usually a higher dose than in females are required in males. **Data deficient**	Usually a higher dose than in females are required in males. **Data deficient**	N/A	N/A	N/A	N/A
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. Additional contraception needed during this time or separation of the sexes.	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. Additional contraception needed during this time or separation of the sexes	N/A	N/A	N/A	Depending on species and individual, perhaps as long as 2 months or more
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	N/A	N/A	Data deficient
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	N/A	N/A	N/A
Duration and Reversibility	No data yet but deslorelin is considered reversible.	No data yet but deslorelin is considered reversible. **Data deficient** in this group, see product information sheet.	N/A	N/A	N/A	The procedure should not be used in males likely to be recommended for subsequent breeding as reversal is unlikely
Effects on Behaviour	Testosterone related aggression is likely to decrease. **Data deficient** in this group, see product information sheet.	Testosterone related aggression is likely to decrease. **Data deficient** in this group, see product information sheet.	N/A	N/A	N/A	Vasectomy will not affect androgen-dependant behaviours
Effects on sexual physical characteristics	Some dichromatic species may change colour if testosterone related. Decrease in body size, feminisation of males.	Some dichromatic species may change colour if testosterone related. Decrease in body size, feminisation of males.	N/A	N/A	N/A	None observed in non-human primates
General:						
Side effects	Similar to gonadectomy; especially weight gain	Similar to gonadectomy; especially weight gain	Possible weight gain, possible increased or decreased frequency of bleeding during menstruation. **EGZAC recommends always reading the manufacturer's data sheet.**	Possible weight gain, possible increased or decreased frequency of bleeding during menstruation. At high doses can have masculinising effect. **EGZAC recommends always reading the manufacturer's data sheet.**	Long term use is not recommended since it can have possible deleterious effects on the uterus and mammary tissue. We have anecdotal evidence of one female who developed endometrial hyperplasia after a single vaccination. Progestins are likely to cause weight gain in all species. In the human literature, Depo-Provera® has been linked to mood changes. Because it binds readily to androgen receptors and is anti-estrogenic, females may experience male-like qualities (increased aggression, development of male secondary sex characteristics, etc.) **EGZAC recommends always reading the manufacturer's data sheet.**	N/A
Warnings	Causes initial gonadal stimulation; correct administration essential - see product information sheet	Causes initial gonadal stimulation	Interaction with other drugs are known to occur and may influence protection against pregnancy. In some diabetic animals progestagens has led to an increased insulin requirement, it is advised that the product be used with caution in diabetic animals and that urine glucose levels are carefully monitored during the month after dosing. **EGZAC recommends always reading the manufacturer's data sheet.**	Interaction with other drugs are known to occur and may influence protection against pregnancy. In some diabetic animals progestagens has led to an increased insulin requirement, it is advised that the product be used with caution in diabetic animals and that urine glucose levels are carefully monitored during the month after dosing. **EGZAC recommends always reading the manufacturer's data sheet.**	We have anecdotal evidence of one female who developed endometrial hyperplasia after a single vaccination. Interaction with other drugs are known to occur and may influence protection against pregnancy. In some diabetic animals progestagens has led to an increased insulin requirement, it is advised that the product be used with caution in diabetic animals and that urine glucose levels are carefully monitored during the month after dosing. **EGZAC recommends always reading the manufacturer's data sheet.**	Infection of the surgical wound might occur. Intradermal closure of the skin is advised together with prophylactic antibiotic treatment and NSAID.
Reporting Requirements: In order to increase our knowledge of the efficacy of contraception methods in lorises it is recommended that all individuals on contraception be reported to EGZAC						

References:

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