Fact Sheet Compiled by: Monica McDonald
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MGA Implant

Active Ingredient
Melengestrol acetate

Product Type
Progestin

Manufacturer
ZooPharm division of Wedgewood Pharmacy

Product information
MGA (melengestrol acetate) is a synthetic progestin. MGA implants contain 20% melengestrol acetate by weight in a silastic matrix. Because different species require different dosages, implants are not interchangeable. MGA implants are effective for a minimum of 2 years, so should be replaced at 2-year intervals. However, efficacy can be much longer in some individuals, so if reversal is desired, the implant should be removed.

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

Dosing
MGA implant dosages can be calculated using the MGA Implant Dosing Table. Multiply the recommended per kg body weight dose by the animal's body weight in kilograms to generate the appropriate implant weight. Send a prescription referencing this implant weight and preferred implant diameter to ZooPharm. Use their prescription number for recording the implant information for the individual in the RMC Contraception Database. If an MGA implant is needed for a species that is not listed, please contact Monica McDonald (contraception@stlzoo.org) at the AZA Reproductive Management Center directly for recommendations.

Implant Sizes
MGA Implants are made by molding the silastic matrix in 1cc, 3cc or 6cc syringe barrels (the 1cc or 3cc are used most commonly). The 1cc syringe produces a longer, thinner implant and the 3cc and 6cc syringes produce shorter, thicker ones. Please specify which syringe size when ordering. If no implant size is specified, the pharmacy will select the size they deem appropriate.

Ordering
MGA implants may be purchased by prescription through ZooPharm. MGA implants cost $35/gram with a $40 RMC surcharge plus shipping and handling. Prescription numbers (printed on MGA implant tube) should be recorded in the animal's record for reporting to the RMC (see instructions above to calculate dose)

Storage
Implants should be stored at refrigeration temperature (4°C). Implants are labeled with an "Implant Use Date" indicating the date by which implants should be placed. This is 12 months from the date of compounding.

Sterilization
MGA implants should be inserted using sterile surgical technique. In addition, it is recommended that implants be gas-sterilized with ethylene oxide (EO) followed by de-gassing at room temperature for a minimum of 2 weeks prior to use. Because the implants are porous, they must be de-gassed longer than metal instruments. Inadequate de-gassing may result in residual gas that may evoke a tissue reaction. Another alternative is the low temperature hydrogen peroxide gas sterilization (STERRAD). A lab test found no difference in MGA release rates after implant sterilization with the STERRAD system, but long-term efficacy of these implants has not yet been evaluated. If neither of these options are available, the implant may be rinsed with alcohol and dried with sterile gauze prior to placement. Do not soak in alcohol, which will leach the MGA steroid hormone from the implant. Sterilization with a cold-soak solution is not recommended, because the chemicals can be absorbed and/or, as will alcohol, MGA may be leached from the implant. Because heat may change the structure of the MGA and of the silastic matrix, implants should not be autoclaved.

Insertion/Administration
Implants should be inserted through a small incision between the scapulae intra-muscularly (IM) if possible, but, if subcutaneous (SQ) is necessary, place implant in a “tunnel” created by blunt dissection of fascia away from the incision. Migration may be controlled by suturing the implant in place at the time of insertion.

Implant loss can be reduced by properly sterilizing implants before insertion, using sterile insertion technique, and separating the animal from conspecifics during the period of healing. (NOTE: in some primate taxa, stainless steel sutures placed away from the implant site have been successful in diverting grooming attention and preventing over-grooming and implant removal by conspecifics, thereby avoiding the need to separate animals). The implant’s presence and location should be confirmed whenever the animal is handled.

Implant Placement and/or Removal Tips
Identification transponder microchips inserted in MGA implants can be used to confirm presence and location. Implants cannot be supplied with transponders already in place. Using sterile procedure, puncture implant longitudinally with needle containing transponder chip (it comes sterile) and insert into implant as you would under the skin. Insert implant into animal using standard surgical technique as outlined above. Alternatively, stainless steel suture or orthopedic wires/pins or comparable material may be incorporated into the implant prior to sterilization to make it visible on radiographs. Implants can also be sutured in place to prevent migration.

Latency to effectiveness
Although individuals vary, threshold levels of the hormone should be reached in the blood within 1 to 3 days following IM insertion and within 1 week after SQ insertion. However, pre-ovulatory follicles are

difficult to suppress, so, if cycle stage is not known, extra time must be allowed. Therefore, separation or alternative contraception should be used for at least 1 week (if IM) or 2 weeks (if SQ) following insertion.

Signs of estrus during treatment
Synthetic progestins may achieve contraception by blocking ovulation, causing thickening of cervical mucus, slowing ovum transport, and/or interfering with fertilization or implantation. However, follicle growth may continue and sometimes be accompanied by estrogen production sufficient to cause estrous behavior. Ovulation may occur even though pregnancy does not ensue. Higher progestin doses may be preferred so that estrous behavior is prevented, but may not be effective in completely suppressing follicle growth and all estrogen production.

Duration of efficacy and reversibility
MGA Implants are effective for at least 2 years, but in most individuals, reproduction will be suppressed much longer. In some cases, they were effective for as much as 5 years when left in place. This means that implants should be replaced every 2 years to ensure contraception, but should be removed when pregnancy is desired. For this reason too, old implants should be removed when a new one is placed to avoid administering a higher than intended dose. Once the implant is removed, the circulating MGA clears very rapidly, so that ovulation and conception may occur within days, although actual latency is usually longer and will depend on the individual.

Use during pregnancy
Progestins are not recommended in late pregnancy because of the possibility of prolonged gestation, although the effect may depend on species and dose.

Use during lactation
Progestins are sometimes prescribed for lactating women and are considered generally safe for nursing infants.

Use in pre-pubertal animals
Lack of data on pre-pubertal treatment and potential long-term effects on fertility contraindicates recommending contraception before puberty. Future reproduction was not affected in calves of domestic cows on MGA-treated feed, but no published studies of pre-pubertal treatment with MGA or other progestins have been conducted with other species, so possible long-term effects on fertility are not known.

Precautions
Progestins may cause weight gain in all species. Possible deleterious effects on uterine and mammary tissues vary greatly by species; see cautions for each taxon.

Consideration for seasonal breeders
Treatment should begin at least 1 month before the anticipated onset of the breeding season. However, in canids, treatment should begin more than 2 months before the time of anticipated estrus, because proestrus increases in estradiol can begin as much as 2 months before estrus, and it is known that this

endogenous estradiol can exacerbate deleterious effects of progestins on the uterus and mammary glands. This synergy of estradiol and progestins may also occur in other carnivores, such as mustelids and ursids.
Contraception must continue for the full breeding season, which may be longer than anticipated for females that are not conceiving.

Reporting Requirements
All institutions using this product 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:
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