1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Folligon PMSG 200 IU/ml lyophilisate and solvent for solution for injection

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

After reconstitution, each 1 ml contains:

Active substance:
Serum gonadotrophin 200 IU

Qualitative composition of excipients and other constituents
Mannitol
Sodium dihydrogen phosphate dihydrate
Disodium hydrogen phosphate dihydrate
Water for injection

Lyophilisate: White to off white powder.
Solvent: Clear, colourless.

3. CLINICAL INFORMATION

3.1 Target species

Cattle, sheep and pigs.

3.2 Indications for use for each target species

To stimulate the development of the ovarian follicle in the female and has spermatogenic activity in the male by its effect on the seminiferous tubules.

The veterinary medicinal product is a complex glycoprotein obtained from the serum of pregnant mares. This substance is capable of supplementing and being substituted for follicle stimulating gonadotrophin of the anterior pituitary gland in both female and male animals.

3.3 Contraindications

None.

3.4 Special warnings

None.

3.5 Special precautions for use

Special precautions for safe use in the target species:
Where the possibility of multiple ovulations has not been excluded by clinical examination following administration of the veterinary medicinal product to uniparous species (unless to induce superovulation in cattle), it is inadvisable to permit service or to inseminate animals during the first heat produced.

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
PMSG can influence fertility in humans after injection.
Administer the veterinary medicinal product with caution to avoid self-injection.

In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician.
Accidental spillage on the skin should be washed immediately with soap and water.

People with known hypersensitivity to Serum gonadotrophin should avoid contact with the veterinary medicinal product.

Special precautions for the protection of the environment:
Not applicable.

3.6 Adverse events

Cattle, sheep and pigs:

Rare (1 to 10 animals / 10,000 animals treated):	Anaphylaxis[1]

[1] May occur shortly after injection, as with all protein preparations. Adrenaline injection (1: 1,000) given intravenously or intramuscularly when symptoms appear is the standard treatment. The administration of corticosteroid may also be indicated.

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 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

Pregnancy:
Do not use during pregnancy.

3.8 Interaction with other medicinal products and other forms of interaction

None known.

3.9 Administration routes and dosage

Routes of administration: Cattle and sheep: intramuscular use (IM); pigs: intramuscular (IM) or subcutaneous (SC) use.

Dose: See table below.

Reconstitution: Reconstitute the lyophilisate with the solvent provided.
Ensure the lyophilisate has fully dissolved before use.
Depending on the presentation (pack size), reconstitute one vial of 1,000 IU lyophilisate with 5 ml of solvent, or reconstitute one vial of 5,000 IU lyophilisate with 25 ml of solvent.
Use normal aseptic precautions. Avoid the introduction of contamination.

Female animals	**Indication**	**Dosage and Administration**
Cattle	Anoestrus/oestrus induction	500 - 1,000 IU, IM
	Superovulation	1,500 - 3,000 IU, IM, between day 8 - 13 of the cycle, followed by prostaglandin, IM, 48 hours later
	Increase in fertility rate after progestagen pre-treatment	300 - 750 IU, IM at the end of a progestagen treatment

Sheep	Increase in fertility rate after progesterone pre-treatment (in and out of breeding season)	400 - 750 IU, IM, at time of progestogen removal (see further information)
Pig	Anoestrus post-weaning (induction of oestrus is difficult until 40 days post partum	1000 IU SC or IM, fertile oestrus usually follows within 3 -7 days

Anoestrus is often caused by inadequate management (feeding and housing). Improvement of management is therefore a prerequisite for a successful treatment.

Superovulation in cattle
The veterinary medicinal product may be used for the superovulation of female donor cattle prior to embryo transfer.
The following is an example of a regime that has successfully been applied in the field:

- A single dose of the veterinary medicinal product (1,500 – 4,000 IU) is injected on day 9 – 13 of a normal oestrus. NB: the exact dose of the veterinary medicinal product required to achieve effective superovulation will depend on a number of factors particularly the breed, age, reproductive history, general health and nutritional status of the donor female, and is subject to individual variation.
- 48 hours after the veterinary medicinal product injection, luteolysis is induced by the injection of a prostaglandin analogue. Usually 1 ½ times the normal luteolytic dose is administered. Oestrus normally occurs approximately 48 hours after the prostaglandin injection.
- Insemination is carried out at 60 and 72 hours after prostaglandin injection.
- Collection of fertilised embryos (flushing) is carried out 6 – 8 days after insemination. Suitable embryos are transferred to female recipient cattle whose oestrus cycles have previously been synchronised with that of the donor female. Experience has shown that oestrus cycles in donor and recipient females should be synchronised within ± 24 hours if reasonable success is to be expected.
- A further prostaglandin treatment (usually 1 ½ times the luteolytic dose) should be administered at the time of embryo collection.

Note:
1. Despite the application of a suitable treatment regime certain individual donor cows may fail to respond.
2. Wide variations in response may be expected between individual animals. Repeated treatment of a single animal may also yield variable results.
3. The overall success of an embryo transfer protocol will be influenced by the availability of suitable equipment and the skill and experience of the operator.

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

No specific treatment or antidote is recommended.

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

Meat and offal: Zero days.
Milk: Zero days.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code: QG03GA03

4.2 Pharmacodynamics

PMSG is a potent gonadotrophin with dual FSH and LH activity. It is composed of two non-covalently associated alpha and beta subunits and is heavily glycosylated on its CTP tail. This extensive glycosylation is of key importance in obtaining the extended half-life in blood that is typical of PMSG. As PMSG binds to FSH and LH receptors, it stimulates follicular growth and follicular maturation in the days preceding oestrus and ovulation. Limited amounts of PMSG will result in induction and synchronisation of ovulation in cattle and small ruminants, irrespective of their cyclicity prior to treatment. Administration of slightly higher amounts will modestly increase ovulation rate and litter size. Administration of high amounts of PMSG will result in superovulation, therefore resulting in the numerous blastocysts needed for embryo transfer.

4.3 Pharmacokinetics

The pharmacokinetic profile observed following injection of PMSG is characterised by the very long half-life generated by the glycosylation (N and O glycosylation) of the PMSG molecule. It also explains why a single PMSG administration has the ability to support follicular growth throughout the full duration of the follicular phase (2 to 5 days depending on the species).

Absorption of PMSG is rapid. In all three species studied, PMSG is rapidly absorbed from the injection site and C_{max} is reached within 8 hours (pig/sheep) or 16 hours (cattle) following injection. Bioavailability following intramuscular injection (compared to intravenous administration) is high in all species (cattle: 72 %; pigs: 71.3 %; sheep: 92.6 %).

PMSG elimination is slow. The elimination half-life has been shown to range between 34 and 150 hours depending on the species.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

Do not mix with any other veterinary medicinal product except solvent supplied for use with the veterinary medicinal product.

5.2 Shelf life

Shelf-life of the veterinary medicinal product as packaged for sale: 3 years.
Shelf-life after reconstitution according to directions: 24 hours.

5.3 Special precautions for storage

Store in a refrigerator (2 ºC – 8 ºC). Store reconstituted veterinary medicinal product in a refrigerator (2 ºC – 8 ºC). Protect from light.

5.4 Nature and composition of immediate packaging

Lyophilisate: Clear type I (Ph. Eur) glass vials with halogenobutyl rubber stopper, closed with a colour coded aluminium cap.

Solvent: Clear type I (Ph. Eur) or type II (Ph. Eur) glass vials with halogenobutyl rubber stopper, closed with a colour coded aluminium cap.

Pack sizes:
Cardboard box with 1 vial of 5,000 IU lyophilisate and 1 x 25 ml vial of solvent.
Cardboard box with 1 vial of 1,000 IU lyophilisate and 1 x 5 ml vial of solvent.

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.

6. NAME OF THE MARKETING AUTHORISATION HOLDER

Intervet Ireland Limited

7. MARKETING AUTHORISATION NUMBER(S)

VPA 10996/055/001

8. DATE OF FIRST AUTHORISATION

19 September 1998

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

12 September 2024

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).