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Product Information

GONADOTROPIN

Product Number **G4877**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS #: 9002-70-4

Synonyms: PMSG; Anteron; Antostab; Eleagol; Equine Cyonin; Equine Gonadotropin; Seragon; Serotropin; Predalon-S; Priatin, Gonadyl¹

Product Description

Appearance: White to off-white powder

Gonadotropin from pregnant mares' serum (PMSG) is a glycoprotein hormone "obtained from the plasma of mares in their sixtieth to seventy-fifth day of pregnancy".² It stimulates the formation of follicles in the mammalian ovary and the formation of the corpus luteum. The glycoprotein consists of alpha and beta subunits of 96 and 149 amino acids respectively and has a pI of 2.60-2.65.³ The pKa of PMSG has been reported to be 3.5.⁴ "The molecular weights of PMSG, PMSG-alpha and PMSG-beta, determined from Ferguson plots (Ferguson, K.A. (1964) *Metabolism* 13, 985-1002) using glycoproteins as molecular weight markers were 64,030, 16,960 and 43,720 respectively. The carbohydrate content of the hormone was 41.7% and the alpha and beta subunits contained 20.6 and 45.8% carbohydrate, respectively (uncorrected for moisture content of protein). The carbohydrate moiety of the hormone is made up of L-fucose (0.6 to 0.9%), D-mannose (2.0 to 2.3%), D-galactose (10.6 to 12%), N-acetylglucosamine (9.0 to 10.5%), N-acetylgalactosamine (3.0 to 3.5%) and sialic acid (12.0 to 14.0%)."⁵ Other literature values for the molecular weight of PMSG have ranged from 49,000 to 68,500.⁶

Precautions and Disclaimer

PMSG is considered to be a possible teratogen.¹

Preparation Instructions

Sigma dissolves this product in water at 1 mg/ml and obtains a clear to slightly hazy, colorless to faint yellow solution.⁷ It is also soluble in dilute alcohol, dilute glycerol and glycols.⁸

"The hormone seems most stable in neutral or slightly alkaline solutions. A water solution containing 0.1 mg/ml (no buffers added) remained unchanged for 2 days at 37 °C, while solutions buffered with sodium acetate to pH 4.5 lost 50% of their activity."⁸ Nevertheless it is probably wise to prepare fresh solutions weekly and store them in the refrigerator. It is also wise to prepare the solution at a protein concentration of at least 1 mg/ml with bovine serum albumin (BSA) added if necessary to supplement protein concentration.

Storage/Stability

PMSG as a powder should be stored in the freezer. Material has been reassayed after four years with essentially no change in its potency.⁷

References

1. Sigma's Material Safety Data Sheet (MSDS).
2. British Pharmacopoeia, vol. 1, p. 400 (1980).
3. The Merck Index, 12th ed., #2273 (1996).
4. Combarous, Y. and Henges, M.-H., *J. Biol. Chem.*, 256(18), 9567 (1981).
5. Christakos, S. and Bahl O.P., *J. Biol. Chem.*, 254(10), 4253 (1979).
6. Moore W.T., Jr., and Ward, D.N., *J. Biol. Chem.*, 256(14), 6923 (1980).
7. Sigma data.
8. The Merck Index, 11th ed, #7515 (1989).

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