



Product Information

Chorionic gonadotropin human

Product Number **C 5297**
Storage Temperature 2-8 °C

Product Description

CAS Number: 9002-61-3
pI = 2.95¹
Extinction Coefficient: $E^{1\%1\text{cm}} = 3.88 (278\text{nm})^2$
Synonym: Choriogonin, hCG

The molecular weight is approximately 37.9 kDa (with approximately 31% carbohydrate by weight). The theoretical molecular weight is 37.9 kDa based on the native form, which contains 2 subunits. The α subunit has a molecular weight of 14.9 kDa of which approximately 10.2 kDa is for the polypeptide and approximately 4.7 kDa for the carbohydrate. The β subunit has a molecular weight of 23 kDa of which approximately 16.0 kDa is for the polypeptide and approximately 7.0 kDa is for the carbohydrate.^{3,4,5}

Product Number C 5297 contains approximately 300,000 I.U. per vial.

hCG is a glycoprotein hormone produced by the chorionic tissue of the placenta. It is a member of the glycoprotein hormone family which includes luteinizing hormone (LH), follicle-stimulating hormone (FSH), and thyroid-stimulating hormone (TSH). Its function is to maintain the corpus luteum and stimulate steroid secretion from the ovary in the beginning stages of gestation. hCG appears in the blood and urine during the first trimester of early pregnancy and levels decrease thereafter. It has been used for superovulation in animals.⁶

hCG consists of an α subunit of 92 amino acids and a β subunit of 145 amino acids.¹ The α subunit is common among the family of glycoprotein hormones, whereas the hormone-specific β subunit, which exhibits different degrees of homology, may confer biologic specificity of the individual hormone.¹ The amino acid sequences of the α subunit^{3,7} and the β subunit^{4,7} and the crystal structure of hCG⁸ have been reported.

When hCG was used in combination with recombinant interferon- γ there was a significant cooperative induction of nitric oxide synthesis (iNOS) in a dose-dependent manner in mouse peritoneal macrophages suggesting that hCG may provide a second signal for synergistic induction of NO synthesis.⁹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

hCG is soluble in 0.1 M sodium phosphate buffer, pH 7.0 (25 mg/ml), yielding a clear, yellow solution. hCG is also soluble in aqueous glycerol and glycols and is insoluble in ethanol.¹ Solutions should be sterile filtered and not autoclaved.

Storage/Stability

Dilute aqueous solutions undergo rapid loss of activity when stored frozen, or heated, or if excess acid or base is added. Gelatin and serum proteins help to stabilize aqueous solutions of hCG. hCG is stable in a glycerol solution at 100 °C for one hour.¹⁰

Neutral buffered solutions can be stored as single use aliquots at -20 °C.

References

1. The Merck Index, 13th ed., Entry# 2237.
2. Bahl, O.P., Human chorionic gonadotropin. I. Purification and physicochemical properties. *J. Biol. Chem.*, **244(4)**, 567-574 (1969).
3. Bellisario, R., et al., Human chorionic gonadotropin. Linear amino acid sequence of the alpha subunit. *J. Biol. Chem.*, **248(19)**, 6796-6809 (1973).
4. Carlsen, R. B. et al., Human chorionic gonadotropin. Linear amino acid sequence of the beta subunit. *J. Biol. Chem.*, **248(19)**, 6810-6827 (1973).

5. Swaminathan, N., and Bahl, O. P., Dissociation and recombination of the subunits of human chorionic gonadotropin. *Biochem. Biophys. Res. Commun.*, **40(2)**, 422-427 (1970).
6. Hogan, B., et al., *Manipulating the Mouse Embryo, A Laboratory Manual*, 2nd ed., p.130, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1994.
7. Morgan, F. J., et al., The amino acid sequence of human chorionic gonadotropin. The alpha subunit and beta subunit. *J. Biol. Chem.*, **250(13)**, 5247-5258 (1975).
8. Laphorn, A. J., et al., Crystal structure of human chorionic gonadotropin. *Nature*, **369(6480)**, 455-461 (1994).
9. Kim, H. M., and Moon, Y. H., Human Chorionic Gonadotropin induces nitric oxide synthase mRNA in mouse peritoneal macrophages. *Biochem. Biophys. Res. Commun.*, **229(2)**, 548-552 (1996).
10. *The Merck Index*, 11th ed., Entry# 4534.

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