

Product Information

Chorionic gonadotropin human, recombinant expressed in mouse cell line

Product Number **C6322**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 9002-61-3
Synonyms: Choriogonin, hCG

Product Description

pI = 2.95¹

Extinction Coefficient: $E^{\text{mM}} = 3.8 (278\text{nm})^2$

Molecular weight: $\sim 37.9\text{ kDa}$ ($\sim 31\%$ carbohydrate by weight).

The theoretical molecular weight of the native form is 37.9 kDa . The native form contains 2 subunits, the α subunit has a molecular weight of 14.9 kDa of which $\sim 10.2\text{ kDa}$ is for the polypeptide and $\sim 4.7\text{ kDa}$ for the carbohydrate, and the β subunit has a molecular weight of 23 kDa of which $\sim 16.0\text{ kDa}$ is for the polypeptide and $\sim 7.0\text{ kDa}$ is for the carbohydrate.^{3,4,5} Apparent molecular weights obtained with SDS-PAGE routinely are higher than the theoretical molecular weight.

This product is recombinant hCG, expressed in a mouse cell line. It has an apparent molecular weight (SDS-PAGE) of $>50\text{ kDa}$.

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^{3,6} and the β subunit^{4,7} and the crystal structure of hCG⁷ have been reported.

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.⁸

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

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

It is recommended to reconstitute hCG in 10 mM sodium phosphate buffer, pH 7.2, containing 150 mM sodium chloride. If the concentration of protein is less than 0.1 mg/ml , the solution should include 0.1% BSA. hCG is soluble in water (1 mg/ml), yielding a clear, colorless solution. It 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, 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 $100\text{ }^{\circ}\text{C}$ for one hour.¹⁰

Solutions reconstituted as previously recommended and in the presence of 0.1% sodium azide can be stored at $2\text{--}8\text{ }^{\circ}\text{C}$ for about one week. Solutions can also be stored as single use aliquots at $-20\text{ }^{\circ}\text{C}$ for long term storage.

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.*, **48(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. 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).
7. Laphorn, A.J., *et al.*, Crystal structure of human chorionic gonadotropin. *Nature*, **369(6480)**, 455-461 (1994).
8. Hogan, B., *et al.*, *Manipulating the Mouse Embryo, A Laboratory Manual*, 2nd ed., Cold Spring Harbor Laboratory Press, (Cold Spring Harbor, NY: 1994) p.130.
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.

ARO,ALF,RXR,MAM 04/06-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.