

Product Information

Chorionic gonadotropin human

Catalog Number **C8554**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

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

Product Description

pI:¹ 2.95
Extinction Coefficient:² $E^{\text{mM}} = 3.8$ (278nm)

Chorionic gonadotropin (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.³

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.⁴

The molecular mass is ~ 37.9 kDa (SDS-PAGE) with $\sim 31\%$ carbohydrate. The theoretical molecular mass is 37.9 kDa based on the native form, which contains 2 subunits. The α subunit has a molecular mass of 14.9 kDa of which ~ 10.2 kDa is for the polypeptide and ~ 4.7 kDa for the carbohydrate. The β subunit has a molecular mass of 23 kDa of which ~ 16.0 kDa is for the polypeptide and ~ 7.0 kDa is for the carbohydrate.⁵⁻⁷

The α subunit contains 92 amino acids and the β subunit has 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^{5,8} and the β subunit,^{6,8} and the crystal structure of hCG⁹ have been reported.

This product is mouse embryo tested and aseptically processed. It is appropriate for use in cell culture applications and recommended for superovulation induction in mice.

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

hCG is soluble in water or sodium chloride solution (1 ml/vial), yielding a clear, colorless to yellow 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

The lyophilized product ships on dry ice and storage at $-20\text{ }^{\circ}\text{C}$ is recommended.

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

Neutral buffered aqueous solutions can be stored as single use aliquots at $-20\text{ }^{\circ}\text{C}$.

References

1. The Merck Index, 13th ed., Entry# 2237.
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3. 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.
4. 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).
5. Bellisario, R. et al., Human chorionic gonadotropin. Linear amino acid sequence of the alpha subunit. *J. Biol. Chem.*, **248(19)**, 6796-6809 (1973).
6. Carlsen, R.B. et al., Human chorionic gonadotropin. Linear amino acid sequence of the beta subunit. *J. Biol. Chem.*, **248(19)**, 6810-6827 (1973).
7. 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).
8. 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).
9. Laphorn, A.J. et al., Crystal structure of human chorionic gonadotropin. *Nature*, **369(6480)**, 455-461 (1994).
10. The Merck Index, 11th ed., Entry# 4534.

KAA,RO,ALF,RXR,MAM 09/08-1

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