Recombinant Human LH alpha/beta Heterodimer

Catalog Number: 8899-LH/CF

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human LH alpha/beta Heterodimer protein Ala25-Ser116 (α chain) & Ser21-Leu141 (β chain) Accession # P01215 (α chain) & P01229 (β chain)
N-terminal Sequence Analysis	Ala25 (α chain), Ser21 (β chain)
Structure / Form	Non-covalent heterodimer
Predicted Molecular Mass	10 kDa (α chain), 13 kDa (β chain)

SPECIFICATIONS

SDS-PAGE	15-26 kDa, reducing conditions
Activity	Measured by its ability to induce cAMP accumulation in MLTC-1 mouse Leydig tumor cells. Rebois, R.V. *et al.* (1982) J. Cell Biol. **94**:70. The ED_{50} for this effect is 0.075-0.75 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in sterile PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Luteinizing Hormone (LH) is a 42 kDa heterodimer belonging to the glycoprotein hormone family. It is composed of noncovalently linked glycosylated α and β chains. The α subunit (CGα) is also a component of Follicle-Stimulating Hormone (FSH), Thyroid-Stimulating Hormone, and Chorionic Gonadotropin. The unique β subunit confers the protein's specific biological action and is responsible for the interaction with its receptor (1, 2). The approximately 20 kDa human CGα subunit shares 73% and 72% amino acid (aa) sequence identity with the mouse and rat orthologs, respectively. The approximately 18 kDa human LHβ subunit shares 71% and 72% aa sequence identity with the mouse and rat orthologs, respectively. Multiple isoforms of LH exist due to differences in the post-translational glycosylation, sialylation, and sulphation modifications of its subunits (3-6). The composition, longevity, and activity of the different LH isoforms vary throughout a woman's menstrual cycle and reproductive life cycle (7). LH is produced and secreted by the anterior pituitary gland. Its secretion is controlled by Gonadotropin-Releasing Hormone from the hypothalamus; however, LH secretion can also be stimulated by estradiol (7, 8). LH works in concert with FSH to regulate female reproduction; FSH stimulates follicular growth and LH induces ovulation (9). LH also drives formation of the corpus luteum by promoting progesterone production (7). Additionally, LH has been suggested to stimulate the adrenal gland in postmenopausal women to induce secretion of sulfated DHEA, a precursor to androgens (10, 11). In the testis, LH induces Leydig cell production of testosterone (7). Hypersecretion of LH has been shown to occur in women with polycystic ovary syndrome and is associated with an increased risk of infertility and miscarriage (12, 13). Additionally, increased serum LH levels are associated with decreased cognition and have been implicated in the development and progression of Alzheimer's disease (14, 15).

References:

1. Keutmann, H.T. *et al.* (1987) Proc. Natl. Acad. Sci. USA **84**:2038.
2. Keutmann, H.T. *et al.* (1992) Mol. Endocrinol. **6**:904.
3. Wilson, C.A. *et al.* (1990) J. Endocrinol. **125**:3.
4. Stanton, P.G. *et al.* (1993) J. Endocrinol. **138**:529.
5. Stanton, P.G. *et al.* (1996) Mol. Cell. Endocrinol. **125**:133.
6. Bergendah, M. and J.D. Veldhuis (2001) Hum. Reprod. **16**:1058.
7. Choi, J. and J. Smitz (2014) Mol. Cell. Endocrinol. **383**:203.
8. Marshall, J.C. *et al.* (1993) Trans. Am. Clin. Climatol. Assoc. **104**:31.
9. Raju, G.A. *et al.* (2013) J. Hum. Reprod. Sci. **6**:227.
10. Alevizaki, M. *et al.* (2006) Eur. J. Endocrinol. **154**:875.
11. Moran, F.M. *et al.* (2013) Menopause **20**:329.
12. Balen, A.H. (1995) J. R. Soc. Med. **88**:339P.
13. Blank, S.K. *et al.* (2006) Hum. Reprod. Update **12**:351.
14. Webber, K.M. *et al.* (2007) Clin. Med. Res. **5**:177.
15. Blair, J.A. *et al.* (2015) Front. Endocrinol. (Lausanne) **6**:45.

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