Recombinant Human FSH α/β

Catalog Number: 5925-FS

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived Human FSH α Ala25-Ser116 Accession # P01215 Human FSH β Cys21-Glu129 Accession # P01225 N-terminus C-terminus
N-terminal Sequence Analysis	Ala25 (FSH α) & Cys21 (FSH β)
Structure / Form	Noncovalently-linked heterodimer
Predicted Molecular Mass	10.2 kDa (FSH α) & 12.4 kDa (FSH β)

SPECIFICATIONS

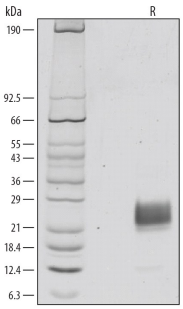
SDS-PAGE	22-26 kDa, reducing conditions
Activity	Measured by its ability to induce cAMP accumulation in HEK293 human embryonic kidney cells transfected with human FSH R. The ED_{50} for this effect is typically 25-200 pg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in PBS containing at least 0.1% human or bovine serum albumin.
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.

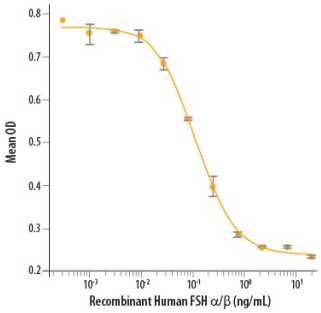
DATA

SDS-PAGE



1 µg/lane of Recombinant Human FSH α/β was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing major bands at 20-25 kDa.

Bioactivity



Recombinant Human FSH α/β (Catalog # 5925-FS) induces cAMP accumulation in the HEK293 human embryonic kidney cell line transfected with human FSH R. The ED_{50} for this effect is typically 25-200 pg/mL.

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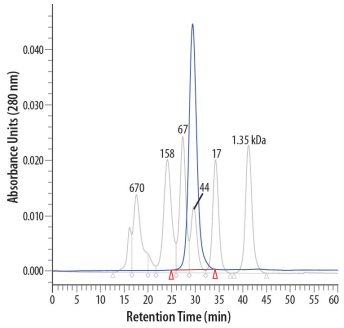
Gel Filtration Chromatography



40 µg of Recombinant Human FSH α/β (blue line) was applied onto a Superdex 200 column. The peak eluted at approximately 44 kDa, form overlaid on the molecular weight markers (gray line), corresponds to the dimeric molecular mass.

BACKGROUND

Follicle-Stimulating Hormone (FSH) is a 33 kDa heterodimer belonging to the glycoprotein hormone family. It is composed of noncovalently linked glycosylated α and β chains. The α subunit is also a component of Luteinizing Hormone (LH), Thyroid-Stimulating Hormone, and Chorionic Gonadotropin. The unique β subunit confers the protein's specific biological action and is responsible for the interaction with the FSH Receptor (1-3). The approximately 20 kDa α subunit of human FSH shares 73% and 72% aa sequence identity with the mouse and rat orthologs, respectively. The approximately 21 kDa human FSH β subunit shares 85% and 82% aa sequence identity with the mouse and rat orthologs, respectively. FSH is produced and secreted by the anterior pituitary gland. Its secretion is controlled by Gonadotropin-Releasing Hormone from the hypothalamus; however, FSH secretion can also be stimulated by activins and inhibited by inhibins (4-6). FSH works in concert with LH to regulate female reproduction; FSH stimulates follicular growth and LH induces ovulation (7). FSH can also regulate estrogen formation by inducing the aromatase enzyme that converts androgen to estradiol (7, 8). In addition, it has been suggested to have a role in postmenopausal bone loss and in the neovascularization surrounding malignant tumors (9-11). In males, FSH is critical for sperm production (12). Mutations in the human *FSH* and *FSHR* genes are associated with reduced reproductive functioning in females (2, 11). Additionally, increased production of autoantibodies directed against FSH β has been suggested to contribute to certain types of female infertility (2). Assisted reproductive technology commonly uses recombinant FSH to induce follicle growth (7).

References:

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