Recombinant Human Prolactin, Animal Component-Free

Cat. No. :	H063C
Alternative Names:	Prolactin; PRL
Species:	Human
Accession No.:	P01236
Expression System:	CHO
Protein Sequence:	Leu29-Cys227
Theoretical MW:	22.9 kDa
Theoretical pI:	6.15
Tag:	Tag-Free.
Formulation buffer:	PBS, 5% Mannitol and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	This product is evaluated based on its ability to induce the proliferation of rat Nb2-11 cells. The ED_{50} for this effect is ≤ 0.1 ng/mL.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution: Reconstitute with sterile double-distilled water (ddH_2O).

⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.

❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.

Shipping: Shipped on dry ice. Short-term transit on cold packs (2-8℃) is acceptable.

Storage: **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -80℃ as supplied.
- 2-7 days at 2 to 8℃ under sterile conditions after reconstitution.
- 3-6 months at -20 to -80℃ under sterile conditions after reconstitution.

Protein Description

Background: Prolactin (PRL), encoded by PRL (6p22.2), is a 199-amino acid pituitary-derived glycoprotein hormone (23 kDa mature form) central to lactation, reproductive physiology, and neuroendocrine-immune crosstalk. Synthesized as a 227-residue preprohormone, it signals via the prolactin receptor (PRLR), activating JAK2-STAT5, MAPK, and PI3K pathways. Beyond mammary gland development and milk production, PRL modulates ovarian/testicular function (inhibiting GnRH pulsatility), immune cell activity, angiogenesis, metabolism, and behavioral adaptation. Secretion is tonically inhibited by hypothalamic dopamine; stimulated by TRH, estrogen, stress, and suckling. Pathologically, hyperprolactinemia – most commonly from prolactin-secreting pituitary adenomas (prolactinomas), medications (antipsychotics), or stalk disruption – causes infertility, hypogonadism, galactorrhea, and bone loss; first-line therapy employs dopamine agonists (cabergoline > bromocriptine). Extrahypophyseal PRL is locally expressed in breast, prostate, decidua, and immune cells, exerting context-dependent paracrine roles in tissue remodeling and cancer (pro-tumorigenic in some breast/prostate contexts). Despite structural homology to growth hormone, PRL exhibits strict species specificity and functional pleiotropy, anchoring its significance in reproductive endocrinology, neuroendocrinology, and oncology.

References:

1. Ben-Jonathan N, Hnasko R. Prolactin: structure, function, and regulation of secretion. Endocr Rev. 2008;29(5):545-561.
2. Boutin JM, et al. Cloning of the cDNA for a human prolactin receptor. Cell. 1989;59(1):67-74.
3. Melmed S, et al. Diagnosis and treatment of hyperprolactinemia: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2011;96(2):273-288.
4. Grattan DR. Multiple roles of prolactin in the regulation of reproduction. Endocrinology. 2015;156(4):1271-1279.
5. Liu X, et al. Prolactin and breast cancer: a systematic review. Endocr Relat Cancer. 2019;26(1):R1-R15.

Product Disclaimer

- This product is intended for research use only and is not for use in diagnostic, therapeutic, or clinical procedures.
- Due to the inherent nature of research reagents, any liability arising from product quality issues is limited solely to the replacement or refund of the product itself and excludes all indirect, incidental, or consequential damages.

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