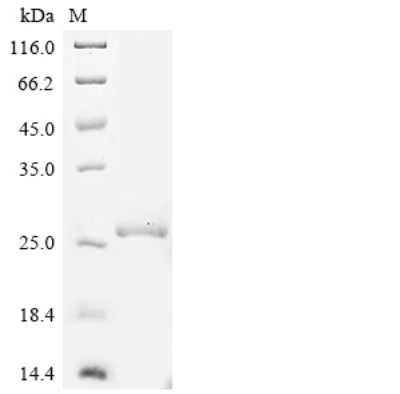
Recombinant Rat Prolactin (Prl)

Product Code	CSB-EP018724RA
Abbreviation	Recombinant Rat Prl protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P01237
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	LPVCSGGDCQTPLPELFDRVVMLSHYIHTLYTDMFIEFDKQYVQDREFIAKAIN DCPTSSLATPEDKEQAQKVPPEVLLNLILSLVHSWNDPLFQLITGLGGIHEAPD AIISRAKEIEEQNKRLLEGIEKIISQAYPEAKGNEIYLVWSQLPSLQGVDEESKDL AFYNNIRCLRRDSHKVDNYLKFLRCQIVHKNNC
Research Area	Signal Transduction
Source	E.coli
Target Names	Prl
Expression Region	30-226AA
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	26.6 kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Synthesizing recombinant rat Prolactin (Prl) in E. coli involves co-inserting the target gene into an expression vector with an N-terminal 6xHis-tag gene, transforming it into E. coli cells, and growing the cells to induce protein expression. The target gene encodes the 30-226aa of the rat Prl. After cell lysis, the rat Prl protein is purified using affinity chromatography. Its purity is evaluated with SDS-PAGE, exceeding 90%.

Rat Prl is a hormone that plays a crucial role in various physiological processes in rats. Research has shown that regulating Prl secretion is complex and varies with the physiological state and time of day [1]. In female rats, Prl is produced by two different cell types, each characterized by distinct secretory granules, indicating a diverse mechanism of Prl synthesis and storage [2]. Studies have demonstrated the presence of Prl receptors in rat hepatocytes, with prolactin exerting sex-dependent effects on the content of these receptors [3].

The production of Prl in rat pituitary tumor cells has been found to differ significantly from that in normal cells, highlighting the diverse mechanisms involved in Prl synthesis [4]. There are sex differences in the neural control of Prl secretion, with male rats showing a tonic release compared to the cyclic pattern observed in females [5].

Prl is also linked to maternal behavior in rats, with studies showing that central Prl infusions stimulate maternal behavior in female rats, an effect that can be modulated by hypophysectomy or bromocriptine treatment [6]. Prl was reported to facilitate female sexual behavior and inhibit copulatory behavior in male rats, indicating a role for Prl in modulating reproductive behaviors [7].

References:

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[2] Y. Tong, H. Zhao, F. Labrie, & G. Pelletier, Effects of estrogens on the ultrastructural characteristics of female rat prolactin cells as evaluated by in situ hybridization in combination with immunogold staining technique, Neuroendocrinology, vol. 52, no. 4, p. 309-315, 1990. https://doi.org/10.1159/000125603
[3] G. Mv and K. Ia, Nuclear manifestation of prolactin receptors in rat hepatocytes and effect of prolactin, Bulletin of Experimental Biology and Medicine, vol. 127, no. 5, p. 526-529, 1999. https://doi.org/10.1007/bf02434959
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[5] J. Wiersma, B. Heijning, & C. Grinten, Electrophysiological evidence for a sex difference in neural regulation of prolactin secretion in rats, Neuroendocrinology, vol. 44, no. 4, p. 475-482, 1986. https://doi.org/10.1159/000124689
[6] R. Bridges, M. Numan, P. Ronsheim, P. Mann, & C. Lupini, Central prolactin

infusions stimulate maternal behavior in steroid-treated, nulliparous female rats., Proceedings of the National Academy of Sciences, vol. 87, no. 20, p. 8003-8007, 1990. https://doi.org/10.1073/pnas.87.20.8003
[7] R. Bridges, R. DiBiase, D. Loundes, & P. Doherty, Prolactin stimulation of maternal behavior in female rats, Science, vol. 227, no. 4688, p. 782-784, 1985. https://doi.org/10.1126/science.3969568

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.