

## Background

Prolactin (PRL) is a neuroendocrine pituitary hormone. Prolactin is synthesized by the anterior pituitary, placenta, brain, uterus, dermal fibroblasts, decidua, B cells, T cells, NK cells and breast cancer cells. Originally characterized as a lactogenic hormone, further studies have demonstrated broader roles in breast cancer development, regulation of reproductive function, and immunoregulation. In the immune system, Prolactin has been shown to be secreted by human PBMC and to act as a proliferative growth factor. Additionally, Prolactin treatment of human PBMC has been shown to enhance IFN- $\gamma$  production. In the breast, Prolactin-induced morphogenesis of the mammary cells is mediated through IGF-2, which in turn upregulates cyclin D1. Prolactin has several molecular forms. The predominant form is a monomer; the non-glycosylated form is 23 kDa and the glycosylated form is 25 kDa. Glycosylated Prolactin is removed from the circulation faster and has been reported to have lower biological potency. Mouse Prolactin cDNA encodes a 228 amino acid (aa) residue protein with a putative 31 aa residue signal peptide. The Prolactin receptor is a transmembrane type I glycoprotein that belongs to the cytokine hematopoietic receptor family. B cells, T cells, macrophages, NK cells, monocytes, CD34<sup>+</sup> progenitor cells, neutrophils, mammary gland, liver, kidney, adrenals, ovaries, testis, prostate, seminal vesicles, and hypothalamus have all been shown to express the Prolactin receptor. Three forms of the receptor, generated by differential splicing, have been identified. These isoforms differ in the length of their cytoplasmic domains. It is believed that the short cytoplasmic form is non-functional. Prolactin signal transduction involves the JAK/STAT families and Src kinase family (1 - 9).

## References:

1. Freeman, M. *et al.* (2000) *Physiological Reviews* **80**:1523.
2. Ben-Johnson, N. *et al.* (1996) *Endoc. Rev.* **17**:639.
3. Cesario, T. *et al.* (1994) *Proc. Soc. Exp. Biol. Med.* **205**:89.
4. Price, A.E. *et al.* (1995) *Endoc.* **136**:4827.
5. Hoffmann, T. *et al.* (1993) *J. Endoc. Invest.* **16**:807.
6. Cole, E. *et al.* (1991) *Endoc.* **129**:2639.
7. Lewis, U. *et al.* (1985) *Endoc.* **116**:359.
8. Matalk, K. (2003) *Cytokine* **21**:187.
9. Brisken, C. *et al.* (2002) *Dev. Cell* **3**:877.

## Description

<b>Source</b>	<i>E. coli</i> -derived Leu32 - Cys228, with an N-terminal Met Accession # NP_035294
<b>N-terminal Sequence Analysis</b>	Met
<b>Predicted Molecular Mass</b>	22.6 kDa

## Specifications

<b>Activity</b>	Measured in a cell proliferation assay using Nb2-11 rat lymphoma cells. Gout, P.W. <i>et al.</i> (1980) <i>Cancer Res.</i> <b>40</b> :2433. The ED <sub>50</sub> for this effect is typically 0.25 - 1 ng/mL.
<b>Endotoxin Level</b>	<1.0 EU per 1 $\mu$ g of the protein by the LAL method.
<b>Purity</b>	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

## Preparation and Storage

<b>Reconstitution</b>	Reconstitute at 100 $\mu$ g/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

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NOT FOR USE IN HUMANS.