

DESCRIPTION

Species Reactivity	Rat
Specificity	Detects rat Prolactin R in direct ELISAs and Western blots. In Western blots, approximately 10% cross-reactivity with recombinant human Prolactin R.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant rat Prolactin R Gln20-Asp229 Accession # Q58DZ7
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

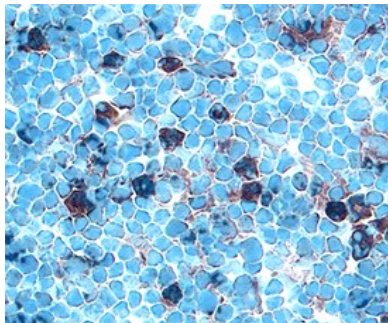
APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Rat Prolactin R Fc Chimera (Catalog # 1112-PR)
Immunohistochemistry	5-15 µg/mL	See Below
Neutralization	Measured by its ability to neutralize Prolactin-induced proliferation in the Nb2-11 rat lymphoma cell line. 25 µg/mL of this antibody will neutralize 0.5 ng/mL of Recombinant Human Prolactin-induced activity by > 60%.	

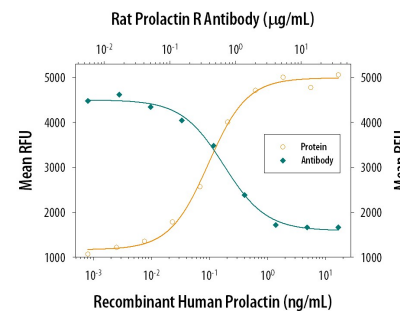
DATA

Immunohistochemistry



Prolactin R in Rat Thymus.
Prolactin R was detected in perfusion fixed frozen sections of rat thymus using Goat Anti-Rat Prolactin R Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1112) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Specific labeling was localized to the cytoplasm of lymphocytes. View our protocol for [Chromogenic IHC Staining of Frozen Tissue Sections](#).

Neutralization



Cell Proliferation Induced by Prolactin and Neutralization by Rat Prolactin R Antibody. Recombinant Human Prolactin (Catalog # 682-PL) stimulates proliferation in the Nb2-11 rat lymphoma cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Human Prolactin (0.5 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Rat Prolactin R Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1112). 25 µg/mL of this antibody will neutralize Recombinant Human Prolactin-induced activity by > 60%.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

The neuroendocrine pituitary hormone Prolactin (PRL), also known as lactotrophin, mamotrophin, luteotropic hormone (LTH), or luteotropin, is a secreted hormone that affects reproduction and homeostasis in vertebrates. The functions of PRL can be placed in six broad categories: 1) reproduction and lactation; 2) growth and development; 3) endocrinology and metabolism; 4) brain and behavior; 5) immunomodulation; and 6) electrolyte balance (1, 2). PRL is secreted by the anterior pituitary gland, mammary gland, placenta, brain, uterus, decidua, dermal fibroblasts, B cells, T cells, NK cells, and some breast cancer cell lines. Although the major form of PRL is a 23 kDa monomeric protein, splice variants of 14, 16, and 22 kDa have been identified. PRL has also been found to be glycosylated, phosphorylated, dimerized, and polymerized. Glycosylation, phosphorylation, dimerization, or polymerization of PRL result in lower activity (2).

Cell activation by PRL is mediated by a single chain membrane-bound protein belonging to the class 1 cytokine superfamily. The PRL receptor (PRL R) contains an extracellular, transmembrane, and intracellular domain. Transcriptional regulation of the PRL R gene results in several different species-dependent isoforms of PRL R being produced. Although the cytoplasmic domains of the different isoforms vary in length and composition, their extracellular domains are identical. In rats, three major PRL receptor isoforms have been described, a short (291 amino acid), an intermediate (393 amino acid), and a long (591 amino acid) (2). PRL receptors are found in mammary tissue, pituitary gland, brain, heart, lung thymus, spleen, liver, pancreas, kidney, adrenal gland, uterus, skeletal muscle, and skin (3). A soluble form of PRL-R containing the 206 NH₂-terminal amino acids of the extracellular domain is secreted by mammary epithelial cells and is found in milk. Binding of the transmembrane PRL R results in ligand dimerization followed by binding and phosphorylation of Jak2. Jak2 then phosphorylates STAT and the long form of PRL R. C-src, fyn, and the Ras/Raf/MAP kinase pathway have also been found to be activated upon PRL R ligand binding (2).

References:

1. Kelly, P.A. *et al.* (2001) *Biochem. Society Transaction* **29**:48.
2. Freeman, M.E. *et al.* (2000) *Physiol. Rev.* **80**:1532.
3. Nagano, M. and P.A. Kelly (1994) *J. Biol. Chem.* **269**:13337.