# Rat Growth Hormone R/GHR Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1211

## DESCRIPTION

| | |
|---|---|
| **Species Reactivity** | Rat |
| **Specificity** | Detects rat Growth Hormone R/GHR in direct ELISAs and Western blots. In direct ELISAs, approximately 30% cross-reactivity with recombinant mouse GHR and recombinant human GHR is observed. |
| **Source** | Polyclonal Goat IgG |
| **Purification** | Antigen Affinity-purified |
| **Immunogen** | Mouse myeloma cell line NS0-derived recombinant rat Growth Hormone R/GHR<br>Phe19-Arg265<br>Accession # P16310 |
| **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.<br>*Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS. |

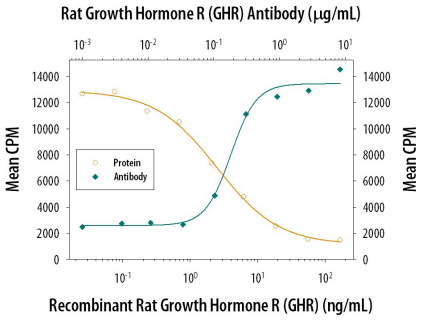
## APPLICATIONS

**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 Growth Hormone R/GHR Fc Chimera (Catalog # 1211-GR) |
| **Immunohistochemistry** | 5-15 µg/mL | Perfusion fixed frozen sections of rat thymus |
| **Neutralization** | Measured by its ability to neutralize Growth Hormone R/GHR-mediated inhibition of proliferation in the Nb2-11 rat lymphoma cell line. The Neutralization Dose ($ND_{50}$) is typically 0.075-0.3 µg/mL in the presence of 10 ng/mL Recombinant Rat Growth Hormone R/GHR Fc Chimera and 0.2 ng/mL Recombinant Human Growth Hormone. | |

## DATA

**Neutralization**




**Growth Hormone R/GHR Inhibition of Growth Hormone-dependent Cell Proliferation and Neutralization by Rat Growth Hormone R/GHR Antibody.** Recombinant Rat Growth Hormone R/GHR Fc Chimera (Catalog # 1211-GR) inhibits Recombinant Human Growth Hormone (Catalog # 1067-GH) induced proliferation in the Nb2-11 rat lymphoma cell line in a dose-dependent manner (orange line). Inhibition of Recombinant Human Growth Hormone (0.2 ng/mL) activity elicited by Recombinant Rat Growth Hormone R/GHR Fc Chimera (10 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Rat Growth Hormone R/GHR Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1211). The $ND_{50}$ is typically 0.075-0.3 µg/mL.

## PREPARATION AND STORAGE

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|---|---|
| **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.<br>*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.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 6 months, -20 to -70 °C under sterile conditions after reconstitution. |



bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

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## BACKGROUND

Growth hormone (GH), also known as somatotropin, is a member of a family of growth factors that includes prolactin, placental lactogens, proliferins and somatolactin (1, 2). It is synthesized primarily by somatotropes in the anterior pituitary and is released as an endocrine hormone. Other cells and tissues, including lymphoid tissues, can also produce GH (3). GH is a pleiotropic molecule which can act directly or indirectly via IGF-I, to regulate growth and metabolism as well as enhance T cell survival and thymic functions (1, 2, 4). GH exerts its biological actions by binding to the GH receptor (GHR) that is present in many cell types (1, 2). Rat GHR cDNA encodes a 638 amino acid (aa) residue type I transmembrane protein with a 18 aa signal peptide, a 247 aa extracellular domain, a 24 aa transmembrane domain and a 349 aa cytoplasmic domain. An alternatively spliced 297 aa isoform of rat GHR also exists. This 279 aa variant corresponds to the serum GH-binding protein and is identical in sequence to the extracellular domain of the transmembrane protein up to Glu262 (5). Ligation of GHR by GH has been shown to result in receptor dimerization and activation of the JAK/STAT signaling cascade (6). The soluble GHBP has been shown to interfere with GH signaling by competing with the transmembrane receptor of GH. Alternatively, the GHBP has also been shown to enhance GH action by slowing GH clearance (5, 7).

**References:**

1. Goffin, V. *et al.* (1996) Endocrine Rev. **17**:385.
2. Le Roith, D. *et al.* (2001) Endocrine Rev. **22**:53.
3. Clark, R. (1997) Endocr. Rev. **18**:157.
4. Welniak, L.A. *et al.* (2002) J. Leukoc. Biol. **71**:381.
5. Postel-Vinay, M.C. and J. Finidori (1995) Eur. J. Endocrinol. **133**:654.
6. Carter-Su, C. *et al.* (1996) Annu. Rev. Physiol. **58**:187.
7. Frick, G.P. *et al.* (1998) Endocrinology **139**:2824.



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**USA** TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
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