Human/Mouse/Rat Growth Hormone Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF1067

DESCRIPTION

Species Reactivity	Human/Mouse/Rat
Specificity	Detects human Growth Hormone in direct ELISAs and Western blots.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	*E. coli*-derived recombinant human Growth Hormone Phe27-Phe217 Accession # CAA23779
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 either lyophilized or as a 0.2 µm filtered solution in PBS.

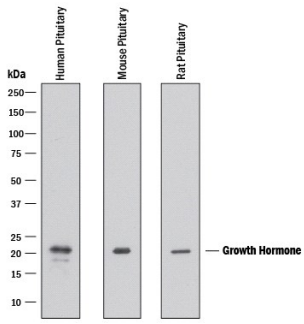
APPLICATIONS

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	0.5 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	See Below
Neutralization	Measured by its ability to neutralize Growth Hormone-induced proliferation in the Nb2-11 rat lymphoma cell line. Gout, P.W. et al. (1980) Cancer Res. **40**:2433. The Neutralization Dose (ND_{50}) is typically 1.5-7.5 ng/mL in the presence of 0.2 ng/mL Recombinant Human Growth Hormone.	
ELISA	This antibody functions as an ELISA detection antibody when paired with Mouse Anti-Human Growth Hormone Monoclonal Antibody (Catalog # MAB10671). *This product is intended for assay development on various assay platforms requiring antibody pairs. We recommend the Human Growth Hormone (GH) DuoSet ELISA Kit (Catalog # DY1067) for convenient development of a sandwich ELISA or the Human Growth Hormone Quantikine ELISA Kit (Catalog # DGH00) for a complete optimized ELISA.*	

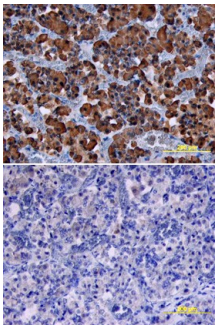
DATA

Western Blot



Detection of Human, Mouse, and Rat Growth Hormone by Western Blot. Western blot shows lysates of human, mouse, and rat pituitary gland tissue. PVDF membrane was probed with 0.5 µg/mL of Goat Anti-Human Growth Hormone Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1067) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for Growth Hormone at approximately 22 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry



Growth Hormone in Human Pituitary. Growth Hormone was detected in immersion fixed paraffin-embedded sections of human pituitary using Goat Anti-Human/Mouse/Rat Growth Hormone Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1067) at 10 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). Lower panel shows a lack of labeling if primary antibodies are omitted and tissue is stained only with secondary antibody followed by incubation with detection reagents. View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

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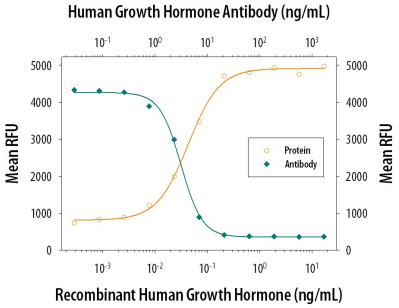
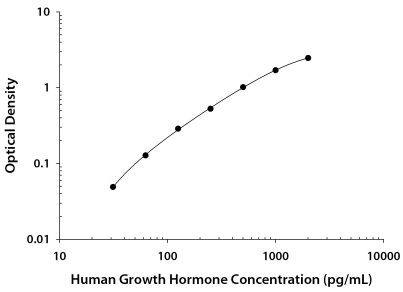
Neutralization



Cell Proliferation Induced by Growth Hormone and Neutralization by Human Growth Hormone Antibody. Recombinant Human Growth Hormone (Catalog # 1067-GH) stimulates proliferation in the Nb2-11 rat lymphoma cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Human Growth Hormone (0.2 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Human/Mouse/Rat Growth Hormone Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1067). The ND_{50} is typically 1.5-7.5 ng/mL.

ELISA



Human Growth Hormone ELISA Standard Curve. Recombinant Human Growth Hormone protein was serially diluted 2-fold and captured by Mouse Anti-Human Growth Hormone Monoclonal Antibody (Catalog # MAB10671) coated on a Clear Polystyrene Microplate (Catalog # DY990). Goat Anti-Human/Mouse/Rat Growth Hormone Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1067) was biotinylated and incubated with the protein captured on the plate. Detection of the standard curve was achieved by incubating Streptavidin-HRP (Catalog # DY998) followed by Substrate Solution (Catalog # DY999) and stopping the enzymatic reaction with Stop Solution (Catalog # DY994).

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.** ● 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

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 stored in secretary granules. The pulsatile release of GH into circulation is regulated by the concerted actions of the hypothalamic hormones - GH-releasing hormone (GHRH) and somatostatin (SST) - as well as by signals from the periphery - ghrelin (3) and leptin (4). The human GH cDNA encodes a 217 amino acid (aa) residue precursor protein with a 26 aa putative signal peptide. By alternative splicing, at least four isoforms of GH have been identified (5).

Human GH is a pleiotropic cytokine that exerts its biological actions by binding to the transmembrane GH receptor, which is present in many cell types (1, 2). GH stimulates the liver and other tissues to produce IGF-I, which regulates growth and metabolism. GH has also been shown to have direct effects on growth that is independent of IGF-I. GH, directly or indirectly via IGF-I, can act on B cells, T cells, NK cells, macrophages, and neutrophils to exert immunomodulatory activities (6). In addition, GH can act directly on various cell types to induce lipolysis, lactation, amino acid uptake, and protein synthesis (1, 2, 6).

References:

1. Goffin, V. *et al.* (1996) Endocrine Rev. **17**:385.
2. Le Roith, D. *et al.* (2001) Endocrine Rev. **22**:53.
3. Kojima, K. *et al.* (1999) Nature, **402**:656.
4. Tannenbaum, G. *et al.* (1998) Endocrinol. **139**:3871.
5. Welniak, L.A. *et al.* (2002) J. Leukoc. Biol. **71**:381.

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