Rat IL-6 Antibody
Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF506

DESCRIPTION

Species Reactivity
Rat

Specificity
Detects rat and mouse IL-6 in direct ELISAs and Western blots. In direct ELISAs, approximately 10% cross-reactivity with recombinant cotton rat IL-6 is observed, and less than 1% cross-reactivity with recombinant human IL-6 is observed.

Source
Polyclonal Goat IgG

Purification
Antigen Affinity-purified

Immunogen
E. coli-derived recombinant rat IL-6
Phe25-Thr211
Accession # P20607

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.

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<th>Recommended Concentration</th>
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Neutralization

Measured by its ability to neutralize IL-6-induced proliferation in the T1165.85.2.1 mouse plasmacytoma cell line. Nordan, R.P. and M. Potter (1986) Science 233:566. The Neutralization Dose (ND50) is typically 0.1-0.5 µg/mL in the presence of 0.6 ng/mL Recombinant Rat IL-6.

DATA

**Western Blot**

Detection of Rat IL-6 by Western Blot. Western blot shows lysates of NR8383 rat alveolar macrophage cell line untreated (-) or treated (+) with LPS. PVDF membrane was probed with 1 µg/mL of Goat Anti-Rat IL-6 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF506) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for IL-6 at approximately 22 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

**Immunocytochemistry**

IL-6 in Mouse T Cells. IL-6 was detected in immersion fixed activated mouse T Cells using 15 µg/mL Rat IL-6 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF506) for 3 hours at room temperature. Cells were stained (red) and counterstained (green). View our protocol for Fluorescent ICC Staining of Non-adherent Cells.

**Neutralization**

Cell Proliferation Induced by IL-6 and Neutralization by Rat IL-6 Antibody. Recombinant Rat IL-6 (Catalog # 506-RL) stimulates proliferation in the T1165.85.2.1 mouse plasmacytoma cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Rat IL-6 (0.6 ng/mL) is neutralized (green line) by increasing concentrations of Rat IL-6 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF506). The ND50 is typically 0.1-0.5 µg/mL.
BACKGROUND
Interleukin-6 (IL-6) is a pleiotropic, alpha-helical, phosphorylated and variably glycosylated cytokine that plays important roles in the acute phase reaction, inflammation, hematopoiesis, bone metabolism, and cancer progression. Mature rat IL-6 is 187 amino acids (aa) in length that is typically expressed as a 22-28 kDa molecular weight protein. Rat IL-6 shares 39% and 85% aa sequence identity with human and mouse IL-6, respectively. Alternative splicing generates several isoforms with internal deletions, some of which exhibit antagonistic properties. IL-6 induces signaling through a cell surface heterodimeric receptor complex composed of a ligand binding subunit (IL-6 R alpha) and a signal transducing subunit (gp130). IL-6 binds to IL-6 R alpha, triggering IL-6 R alpha association with gp130 and gp130 dimerization. gp130 is also a component of the receptors for CLC, CNTF, CT-1, IL-11, IL-27, LIF, and OSM. Soluble forms of IL-6 R alpha are generated by both alternative splicing and proteolytic cleavage. In a mechanism known as trans-signaling, complexes of soluble IL-6 and IL-6 R alpha elicit responses from gp130-expressing cells that lack cell surface IL-6 R alpha. Trans-signaling enables a wider range of cell types to respond to IL-6, as the expression of gp130 is ubiquitous, while that of IL-6 R alpha is predominantly restricted to hepatocytes, monocytes, and resting lymphocytes. Soluble splice forms of gp130 block trans-signaling from IL-6/IL-6 R alpha but not from other cytokines that use gp130 as a co-receptor. IL-6, along with TNF-alpha and IL-1, function to drive the acute inflammatory response and the transition from acute inflammation to either acquired immunity or chronic inflammatory disease. When dysregulated, it contributes to chronic inflammation in obesity, insulin resistance, inflammatory bowel disease, arthritis, sepsis, and atherosclerosis. IL-6 can also function as an anti-inflammatory molecule, as in skeletal muscle where it is secreted in response to exercise. In addition, it enhances hematopoietic stem cell proliferation and the differentiation of Th17 cells, memory B cells, and plasma cells.