**DESCRIPTION**

**Species Reactivity** Human/Mouse/Rat

**Specificity** Detects human, mouse and rat Activin A in direct ELISAs and Western blots.

**Source** Polyclonal Goat IgG

**Purification** Antigen Affinity-purified

**Immunogen** Chinese hamster ovary cell line CHO-derived recombinant human Activin A

**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.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Recommended Concentration</th>
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<tr>
<td>Recombinant Human/Mouse/Rat Activin A</td>
<td>0.1 µg/mL</td>
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<tr>
<td>(Catalog # 338-AC)</td>
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**Neutralization** Measured by its ability to neutralize Activin A-induced hemoglobin expression in the K562 human chronic myelogenous leukemia cell line. Schwall, R. H. et al. (1991) Method Enzymol. 198:340. The Neutralization Dose (ND50) is typically 2-6 µg/mL in the presence of 7.5 ng/mL Recombinant Human/Mouse/Rat Activin A.

**DATA**

**Immunocytochemistry**

Activin A was detected in immersion fixed SK-BR-3 human breast cancer cell line (left panel, positive stain) and HeLa human cervical epithelial carcinoma cell line (right panel, negative stain) using Goat Anti-Human/Mouse/Rat Activin A βA subunit Antigen Affinity-purified Polyclonal Antibody (Catalog # AF338) at 5 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to endoplasmic reticuli. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

**Immunohistochemistry**

Activin A in Human Breast Cancer Tissue. Activin A was detected in immersion fixed paraffin-embedded sections of human breast cancer tissue using 5 µg/mL, Goat Anti-Human/Mouse/Rat Activin A βA Subunit Antigen Affinity-purified Polyclonal Antibody (Catalog # AF338) overnight at 4 °C. Tissue was stained (red) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.
Neutralization
Hemoglobin Expression Induced by Activin A and Neutralization by Human/Mouse/Rat Activin A Antibody.

Recombinant Human/Mouse/Rat Activin A (Catalog # 338-AC) increases hemoglobin expression in the K562 human chronic myelogenous leukemia cell line in a dose-dependent manner (orange line), as measured by the psuedoperoxidase assay. Hemoglobin Expression elicited by Recombinant Human/Mouse/Rat Activin A (7.5 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Human/Mouse/Rat Activin A βA subunit Affinity-purified Polyclonal Antibody (Catalog # AF338). The ND50 is typically 2-6 µg/mL.

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

Activin and Inhibin are members of the TGF-β superfamily of cytokines and are involved in a wide range of biological processes including tissue morphogenesis and repair, fibrosis, inflammation, neural development, hematopoiesis, reproductive system function, and carcinogenesis (1-7). Activin and Inhibin are produced as precursor proteins. Their amino terminal propeptides are proteolytically cleaved and facilitate formation of disulfide-linked dimers of the bioactive proteins (8, 9). Activins are nonglycosylated homodimers or heterodimers of various β subunits (βA, βB, βC, and βE in mammals), while Inhibins are heterodimers of a unique α subunit and one of the β subunits. Activin A is a widely expressed homodimer of two βA chains. The βA subunit can also heterodimerize with a βB or βC subunit to form Activin AB and Activin AC, respectively (10). The 14 kDa mature human βA chain shares 100% amino acid sequence identity with bovine, feline, mouse, porcine, and rat βA. Activin A exerts its biological activities by binding to the type 2 serine/threonine kinase Activin RIIA which then noncovalently associates with the type 1 serine/threonine kinase Activin RI/ALK-4 (7, 11). Signaling through this receptor complex leads to Smad activation and regulation of activin-responsive gene transcription (7, 11). The bioactivity of Activin A is regulated by a variety of mechanisms (11). BAMBI, Betaglycan, and Cripto are cell-associated molecules that function as decoy receptors or limit the ability of Activin A to induce receptor complex assembly (12-14). The intracellular formation of Activin A can be prevented by the incorporation of the βA subunit into Activin AC or Inhibin A (3, 10). And the bioavailability of Activin A is restricted by its incorporation into inactive complexes with α2-Macroglobulin, Follistatin, and FLRG (15, 16).

References: