

**DESCRIPTION**

**Source** Human embryonic kidney cell, HEK293-derived  
Gly297-Ala411  
Accession # Q04999

**N-terminal Sequence Analysis** Gly297

**Structure / Form** Disulfide-linked homodimer

**Predicted Molecular Mass** 13 kDa (monomer)

**SPECIFICATIONS**

**SDS-PAGE** 12 kDa, reducing conditions

**Activity** Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. Schwall, R.H. *et al.* (1991) *Method Enzymol.* **198**:340.  
The ED<sub>50</sub> for this effect is 0.2-1.2 ng/mL.

**Endotoxin Level** <0.10 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE with silver staining.

**Formulation** Lyophilized from a 0.2 µm filtered solution in HCl. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 100 µg/mL in sterile 4 mM HCl.

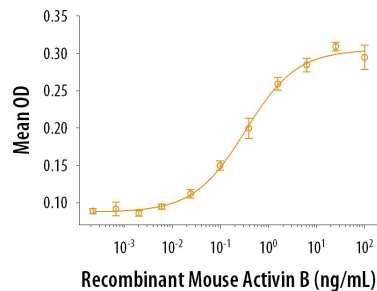
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

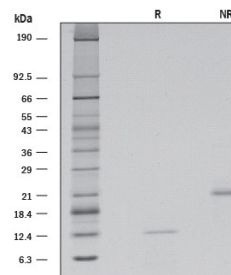
**DATA**

**Bioactivity**



Recombinant Mouse Activin B (Catalog # 8260-AB/CF) induces hemoglobin expression in K562 human chronic myelogenous leukemia cells. The ED<sub>50</sub> for this effect is 0.2-1.2 ng/mL.

**SDS-PAGE**



1 µg/lane of Recombinant Mouse Activin B was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 12 and 21 kDa, respectively.

**BACKGROUND**

Activin and Inhibin, members of the TGF- $\beta$  superfamily of cytokines, are involved in a range of biological processes including neural development, stem cell differentiation, reproductive physiology, inflammation, tissue morphogenesis and bone remodeling (1-5). Activins function as either a homodimer or heterodimer of non-glycosylated  $\beta$  subunit proteins ( $\beta$ A,  $\beta$ B,  $\beta$ C, and  $\beta$ E in mammals). Inhibins are heterodimers consisting of a unique  $\alpha$  subunit and any one  $\beta$  subunit. The  $\alpha$ - and  $\beta$ -subunits are produced as precursor proteins with an amino-terminal propeptide that is cleaved to release a carboxy-terminal monomeric subunit that becomes bioactive upon disulfide linkage with another Activin monomer (6, 7). The bioactive Activin B dimeric protein consists of two  $\beta$ B subunits. The 13 kDa mature mouse Activin  $\beta$ B subunit shares 99% and 98% amino acid sequence identity with rat and human Activin  $\beta$ B, respectively. Activin B exerts its biological function upon binding to the type 2 serine/threonine kinase Activin receptor (Act RIIA). This receptor-ligand complex noncovalently associates and transphosphorylates the type 1 Activin receptor (ActRI) to initiate intracellular SMAD activation and the subsequent regulation of Activin-responsive gene transcription (8). BAMB1, Betaglycan, and Cripto, regulate the bioactivity of Activin B by restricting its ability to induce receptor complex assembly. Alternatively, bioavailability of Activin B is modulated through sequestration into inactive complexes with  $\alpha$ 2-Macroglobulin, Follstatin, and FLRG (9-12).

**References:**

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