

**DESCRIPTION**

<b>Source</b>	Chinese Hamster Ovary cell line, CHO-derived Ser21-Ser426 Accession # P08476
<b>N-terminal Sequence Analysis</b>	Ser21 (pro) & Gly311 (mature)
<b>Structure / Form</b>	Noncovalently-linked complex between disulfide-linked homodimer of the mature domain and noncovalently-linked homodimer of the prodomain
<b>Predicted Molecular Mass</b>	32 kDa (pro) & 13 kDa (mature)

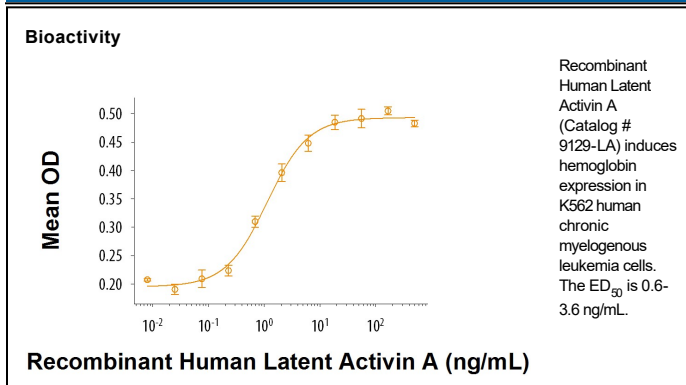
**SPECIFICATIONS**

<b>SDS-PAGE</b>	13-16 kDa (mature) and 39 - 46 kDa (pro), reducing conditions
<b>Activity</b>	Measured by its ability to induce hemoglobin expression in K562 human chronic myelogenous leukemia cells. Schwall, R.H. <i>et al.</i> (1991) <i>Method Enzymol.</i> <b>198</b> :340. The ED <sub>50</sub> for this effect is 0.6-3.6 ng/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100 µg/mL in PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**



**BACKGROUND**

Activin and Inhibin are members of the TGF- $\beta$  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). The amino terminal propeptides of Activin and Inhibin are proteolytically cleaved and facilitate formation of disulfide-linked dimers of the bioactive proteins (8, 9). The propeptide of Activin remains associated with the bioactive protein in a latent complex that retains the ability to bind its receptors (10). Activins are nonglycosylated homodimers or heterodimers of various  $\beta$  subunits ( $\beta$ A,  $\beta$ B,  $\beta$ C, and  $\beta$ E in mammals), while Inhibins are heterodimers of a unique  $\alpha$  subunit and one of the  $\beta$  subunits. Activin A is a widely expressed homodimer of two  $\beta$ A chains. The  $\beta$ A subunit can also heterodimerize with a  $\beta$ B or  $\beta$ C subunit to form Activin AB and Activin AC, respectively (11). The 14 kDa mature human  $\beta$ A chain shares 100% amino acid sequence identity with bovine, feline, mouse, porcine, and rat  $\beta$ A. 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 RIB/ALK-4 (7, 12). Signaling through this receptor complex leads to Smad activation and regulation of activin-responsive gene transcription (7, 12). The bioactivity of Activin A is regulated by a variety of mechanisms (12). 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 (13-15). The intracellular formation of Activin A can be prevented by the incorporation of the  $\beta$ A subunit into Activin AC or Inhibin A (3, 11). And the bioavailability of Activin A is restricted by its incorporation into inactive complexes with  $\alpha$ 2-Macroglobulin, Follistatin, and FLRG (16, 17).

**References:**

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