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**RECOMBINANT HUMAN ACTIVIN A ACF**



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PN 41009 Rev. 1

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# RECOMBINANT HUMAN ACTIVIN A ACF

## SHIPPING

This product is shipped at ambient temperature. Immediately upon receipt, store at the recommended temperature below.

Catalog No. 95106

## STORAGE INSTRUCTIONS AND STABILITY

Upon receipt, store the lyophilized protein at or below -10°C in a manual defrost freezer for up to 12 months from date of receipt. Unopened vials are stable for one year from the date of receipt when stored as recommended. Reconstituted material should be apportioned in working volumes and stored at or below -10°C in manual defrost freezer. Reconstituted material is stable for 4-6 weeks when stored at or below -10°C and for 3-12 months at -80°C. Stability can be increased by adding at least 0.1% of carrier protein.

## INTENDED USE

Recombinant human Activin A is a carrier-free, animal component-free bioactive recombinant cytokine intended for use in cell culture applications. Activin A is involved in a wide range of biological processes including cell proliferation, inflammation, differentiation and apoptosis.

## PRODUCT DESCRIPTION

## PRECAUTIONS AND WARNINGS

This product is for research or further manufacturing use only. It is not for use in diagnostic procedures. The safety and efficacy of this product in diagnostic or other clinical procedures has not been established.

## DIRECTIONS FOR USE

### 1. Synonyms

Inhibin beta-1, FRP, FSH-releasing protein.

### 2. Accession Number

P08476

### 3. Background

Activins are multifunctional cytokines part of TGF beta super-family. They are dimeric proteins of beta subunits connected by disulfide bonds. Activin A is a homodimeric protein of two  $\beta_A$  chains and is not biologically active until the N-terminal pro-peptide is cleaved from each chain. Activins are involved in a wide range of biological activities and produced by many cell types throughout development. Activins interact with Type I and Type II receptors with intracellular serine/threonine kinase domains to signal to SMAD proteins to regulate cellular processes such as cell proliferation, differentiation, wound healing, apoptosis and metabolism. Human Activin A shares 100% amino acid sequence identity with murine, porcine, bovine and feline Activin. Recombinant human Activin A is a non-glycosylated homodimer, containing two 117 amino acid chains, with a total molecular weight of 26.2 kDa (1-4).

### 4. Specifications

#### Formulation

Recombinant human Activin A is lyophilized with no additives.

#### Protein content and Purity

≥95% determined by HPLC, reducing and non reducing SDS-PAGE analysis, UV spectroscopy.

#### Bioactivity

ED50 is determined by a dose-dependent proliferation inhibition of mouse plasmacytoma cell line MPC-11(5). The ED50 is typically 0.5-5ng/mL.

#### Quality and Grade

Carrier-free. Animal component-free.

### 1. Reconstitution

Centrifuge vials before opening. When reconstituting the product, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution. It is recommended to reconstitute the lyophilized product with sterile water, which can be further diluted into other aqueous solutions.

### 2. Optimum concentration

The optimum concentration varies depending on cell type and culture conditions. Working concentration should be determined for each specific application.

## REFERENCES

1. De Krester DM, O'Hehir RE, Hardy CL and Hedger MP (2012) The roles of Activin A and its binding protein, follistatin, in inflammation and tissue repair. *Mol. Cell Endocrinol.* 359(1-2): 101-106
2. Rodriguez-Martinez G and Velasco I (2012) Activin and TGF- $\beta$  affects on brain development and neural stem cells. *CNS Neurol. Disord. Drug Targets* 11(7): 844-855
3. Zamani N and Brown CW (2011) Emerging roles of the transforming growth factor- $\beta$  superfamily in regulating adiposity and energy expenditure. *Endocr. Rev.* 32(3): 387-403
4. Maeshima A, Miya M, Mishima K, Yamashita S, Kojima I and Nojima Y (2008) Activin A: autocrine regulator of kidney development and repair. *Endocrine Journal* 55(1): 1-9
5. Philips DJ, Brauman JN, Mason AJ, de Krester DM and Hedger MP (1999) A sensitive and specific in vitro bioassay for Activin using a mouse plasmacytoma cell line, MPC-11. *Journal Of Endocrinology* 162: 111-116