Cytokines

Human Recombinant Activin A, ACF

Activin A, animal component-free

Catalog #	78132	10 µg
	78132.1	100 µg
	78132.2	1000 µg

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Product Description

Activin A is a member of the transforming growth factor beta (TGF-β) family of proteins produced by many cell types throughout development (Gurdon et al.). It is a disulfide-linked homodimer (two beta-A chains) that binds to heteromeric complexes of a type I (Act RI-A and Act RI-B) and a type II (Act RII-A and Act RII-B) serine-threonine kinase receptor (Attisano et al.). Activins primarily signal through SMAD2/3 proteins to regulate a variety of functions, including cell proliferation, differentiation, wound healing, apoptosis, and metabolism (McDowell et al.). Activin A maintains the undifferentiated state of human embryonic stem cells (James et al.; Xiao et al.) and also facilitates differentiation of human embryonic stem cells into definitive endoderm (D'Amour et al.). This product is animal component-free.

Product Information

Alternative Names:	Activin beta-A chain, EDF, Erythroid differentiation protein, FRP, FSH-releasing protein, INHBA, Inhibin betaA chain, Inhibin beta-1
Accession Number:	P08476
Amino Acid Sequence:	MGLECDGKVN ICCKKQFFVS FKDIGWNDWI IAPSGYHANY CEGECPSHIA GTSGSSLSFH STVINHYRMR GHSPFANLKS CCVPTKLRPM SMLYYDDGQN IIKKDIQNMI VEECGCS
Predicted Molecular Mass:	13.1 kDa monomer; 26.2 kDa dimer
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

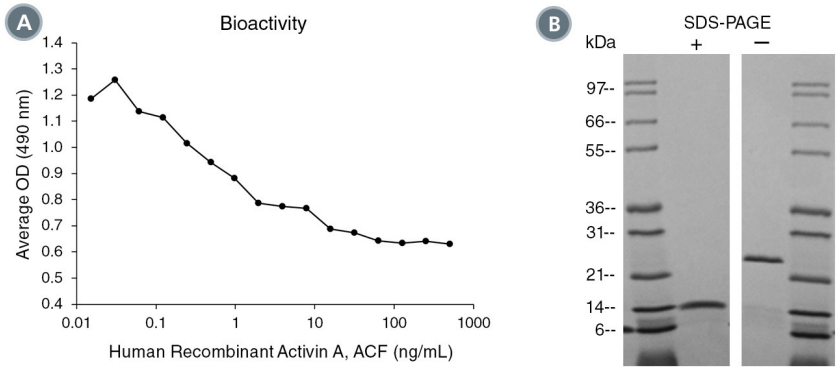
Specifications

Activity:	The EC50 is ≤ 10 ng/mL as determined by a cell proliferation assay using MPC-11 cells. The specific activity is approximately 1.2 IU/µg as calibrated against the human recombinant Activin A WHO International Standard (NIBSC code: 91/626).
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20°C to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant Activin A, ACF was tested by its ability to inhibit proliferation of MPC-11 cells. Inhibition of cell proliferation was measured after 66 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation inhibition is at 50% of maximum. The EC50 in the above example is 0.436 ng/mL.
(B) 1 µg of Human Recombinant Activin A, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Activin A, ACF has a predicted molecular mass of 26.2 kDa (13.1 kDa per monomer).

Related Products

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References

Attisano L et al. (1996) Activation of signalling by the activin receptor complex. Mol Cell Biol 16(3): 1066–73.
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McDowell N et al. (1997) Activin has direct long-range signalling activity and can form a concentration gradient by diffusion. Curr Biol 7(9): 671–81.
Xiao L et al. (2006) Activin A maintains self-renewal and regulates fibroblast growth factor, Wnt, and bone morphogenic protein pathways in human embryonic stem cells. Stem Cells 24(6): 1476–86.

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