

Cytokines

Human Recombinant Activin A, ACF

Activin A, animal component-free



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Catalog #	78132	10 µg
	78132.1	100 µg
	78132.2	1000 µg

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 STVINHYRMRGHSPFANLKS 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

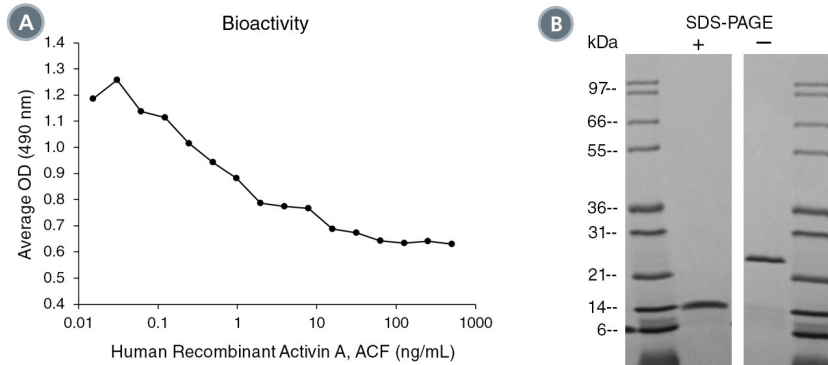
Specifications

Activity:	The specific activity is $\geq 1.0 \times 10^5$ units/mg ($EC_{50} \leq 10$ ng/mL) as determined by a cytotoxicity assay using MPC-11 cells.
Purity:	$\geq 95\%$
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. Resuspend the product in sterile water containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately, BSA is not required.

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 example above 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.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

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- D'Amour KA et al. (2005) Efficient differentiation of human embryonic stem cells to definitive endoderm. *Nat Biotechnol* 23(12): 1534–41.
- Gurdon JB et al. (1994) Activin signalling and response to a morphogen gradient. *Nature* 371(6497): 487–92.
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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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