

# Cytokines

## Human/Mouse 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- $\beta$ ) 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 CEGECP SHIA GTSGSSLSFH STVINHYRMR GHSPFANLKS CCVPTKLRPM SMLYYDDGQN IIKKDIQNM I VEECGCS
Predicted Molecular Mass:	13.1 kDa monomer; 26.2 kDa dimer
Species:	Human, Mouse
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	<i>E. coli</i>

## Specifications

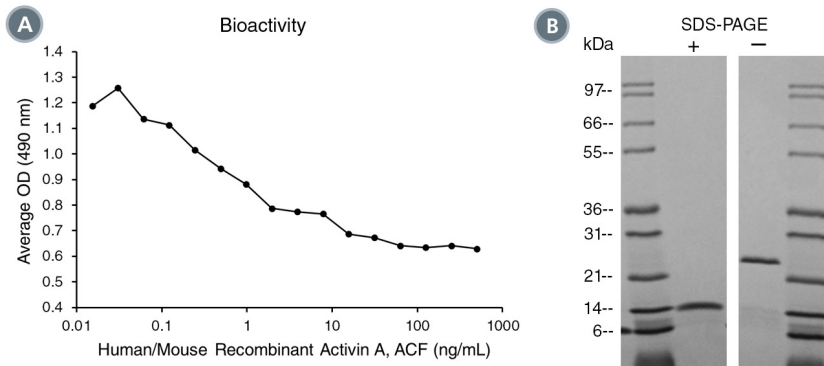
Activity:	The EC50 is $\leq 10$ ng/mL as determined by a cell proliferation assay using MPC-11 cells. The specific activity is approximately 1.2 IU/ $\mu$ g as calibrated against the human recombinant Activin A WHO International Standard (NIBSC code: 91/626).
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is $\leq 1$ EU/ $\mu$ g 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/Mouse 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. 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/Mouse Recombinant Activin A, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human/Mouse 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.
- D'Amour KA et al. (2005) Efficient differentiation of human embryonic stem cells to definitive endoderm. *Nat Biotechnol* 23(12): 1534–41.
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